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ORIGINAL ARTICLES.

THE CONSIDERATION OF LATE HEREDITARY SYPHILIS.

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ON several occasions young girls of from five to eighteen years of age have been shown at meetings of the Chicago Dermatological Society, who presented undoubted lesions of tertiary syphilis, without a history of extragenital infection or previous eruptions of syphilis, and in whom none of the triad symptoms of hereditary syphilis was present. In the discussion of these cases it was apparent that a difference of opinion existed as to whether these were cases of extragenital infection, or cases of long periods of latency in hereditary syphilis. The question which arose was: Can hereditary syphilis manifest itself for the first time some years after birth by the presence of such late lesions as occur in the acquired form, and with a total absence of the triad symptoms?

That long periods of latency is one of the chief characteristics of acquired syphilis there can be no doubt, as we all have seen cases in which from ten to twenty years have elapsed from the time the disease was acquired to the time the tertiary symptoms appeared.

If long periods of latency may occur in the acquired form of syphilis, why may they not occur in hereditary syphilis? Syphilis is the same whether acquired by the individual himself directly, or transmitted to him by his parents at the time of conception. Such being the case, then we might expect to find long periods of latency in hereditary syphilis, and if long periods of latency do not occur, then this form of the disease differs from ordinary or acquired syphilis.

While it often may be extremely difficult to establish the fact that children, born of syphilitic parents and exhibiting late lesions, may not have had other lesions early in life, still such cases are not infrequently met with. They must, however, be very carefully scrutinized, in order to avoid error. The ease with which one may be deceived in this matter is illustrated by the following cases: I have under observation at the present time several children who presented symptoms of hereditary or congenital syphilis at the time of birth, but who are entirely free from evidence of the disease at the present time. Were these children to be observed at the age of twenty years, and lesions of syphilis be found present, these children never having been informed by their parents or physician that they were born with the disease would naturally give a negative history, and their cases readily be misconstrued or accepted as cases of acquired syphilis.

In establishing a diagnosis of hereditary syphilis, there are three points, known as the triad of syphilis, which have long been looked upon as of the greatest value. These are, namely, Hutchinson's teeth, interstitial keratitis, and a particular form of deafness.

Let us consider these points in order. Great stress has been laid upon the diagnostic value of the Hutchinsonian teeth, but they in themselves are late manifestations of inherited taint, and can be accepted in no other sense. They are not present in the first or temporay teeth, but in the second or permanent teeth, which do not appear until the fifth to sixth year, and are not always indicative of syphilis when present, as J. C. White[1] has reported a case of a boy who presented the central incisors notched from side to side, with the lateral incisors wanting, in whom the suspicion of syphilis was absolutely excluded. The other teeth were normal. The deformity followed a sudden and severe attack of cervical adenopathy. Again, the characteristic teeth are present in only a minority of those who are the subjects of inherited syphilis, and it is unquestionably true that teeth of perfect development may not infrequently be seen in the mouths of those who have suffered severely from inherited taint.

Interstitial keratitis is, perhaps, the most frequent of Hutchinson's symptoms, and occurs usually between the ages of six and fifteen years; but, unlike the Hutchinson teeth, it may appear as early as the second or third year of life. Fournier claims this symptom may be due to malnutrition, as well as to inherited syphilis, and no differentiation between these two etiological factors can be made in the effects on the cornea.

Labyrinthine, or central deafness, depending possibly upon lesions of the auditory nerves, is most frequently met with in children about the age of puberty, or in adults, and manifests its presence by the following symptoms: It is, as a rule, unilateral in the beginning, but after a shorter or longer period varying from a few weeks to some months the other ear becomes affected, deafness appears suddenly, and advances rapidly; it is not accompanied by pain, or any discharge, although occasionally an otitis media purulenta may be present. The patient complains of noises, dizziness, and sometimes even attacks of vertigo occur. The deafness is usually progressive, and after some weeks may become absolute. It is not improved by antisyphilitic treatment.

While the above-mentioned points are of great

diagnostic value in hereditary syphilis, there are others which, although perhaps not so common, are nevertheless of much significance when present. Among these may be mentioned acute ulcerative destruction of the palate in young persons. This in itself is almost conclusive proof of an inherited taint.

Edmond Fournier [2] and some other French writers lay great stress on the findings in the fundus of the eye as an aid in the diagnosis of hereditary syphilis. In one case he describes atrophic chorioretinal plaques in both eyes. In another case the remains of an old papillitis was seen. Vascular changes and alterations of pigment, which the oculist, Antonelli, stated could only be the stigmata of hereditary syphilis, were observed in one eye, and in the other there was a rudimentary optic neuritis, a diffuse retinitis of several months' standing, manifesting itself by several foci of exudation in the central region, by a suffusion which was quite extensive, and by multiple separations of the retina in the temporal and upper sections of the eye fundus.

Late hereditary syphilis may affect the skin, appearing as gummata singly or in groups of solid nodules, which are dark red in color, and are most frequently seen on the face or forelegs. These nodules may later break down and ulcerate. On the face they most frequently attack the nose, and when on the legs the anterior surface. The ulcers are sharply defined, and clearly cut with abrupt, uneven edges, and present the usual characteristic appearances of the ulcerating gummata of acquired syphilis. *Unlike early acquired syphilis, we never have any scaly or small papular eruptions.*

Nothwithstanding all of these points, it must be admitted that there are patients in whom, in spite of the modern development of diagnosis, the recognition of inherited taint is still a matter of great difficulty, if not an impossibility. We must, however, be prepared to encounter now and then manifestations of inherited syphilis in those who do not show a single corroborative feature.

Hyde [3] remarks that not every child with Hutchinsonian teeth, with cranial bosses, with natiform skulls, or suffering from a rebellious affection, is the victim of inherited syphilis, and that even the painstaking labors of A. Parrot have not sufficed to obliterate the distinction between syphilis and rickets.

Cases of latent hereditary syphilis are not very numerous in literature.

Jordan [4] reports the following two cases:

Case I.—Patient, army officer, twenty-two years old; applied April 23, 1902, for treatment for disease of the knee-joint. He denied all knowledge of venereal disease. About the end of April, 1901, patient first complained of pain in both knee-joints on climbing stairs. This without apparent cause. In June, pain disappeared from the right knee-joint, while the pain in the left became more intense. Early in July the army surgeon noticed a swelling of the knee-joint, and induced the officer to ask for a furlough. No improvement was noted after treatment with baths and compressed applications, consequently the patient entered a surgical clinic in September, 1901. Effusion in the left knee-joint was treated with iodine, compression and hot air. The swelling decreased in amount, but did not entirely disappear. Palpation of the joint was painful, and an incision was made above the patella, under the supposition that the case was one of tuberculosis. Drainage of the joint with iodoform gauze. Examination of the urine was negative as to gonococci. The wound healed, the patient was discharged, in November, wearing a plaster-of-Paris dressing or cast. The end of March following, the swelling in the joint, which had never entirely ceased, became increased. Examination of the joints, April 1, 1902, when first seen by Jordan, showed the left knee-joint remarkably swollen and tender, and some slight swelling in the right knee. Both joints were freely movable. A thorough examination of the young man did not reveal any signs of past tuberculosis or lues. Treatment instituted consisted of complete rest in bed, baths and compression bandages. A week later, notwithstanding this treatment, the swelling increased in the right knee-joint, and closer observation gave the impression that the cause of this swelling was syphilis. Jordan made this diagnosis by exclusion. Hydrops could not be accounted for by its usual etiological factor. Trauma was excluded. Acute articular rheumatism was absent. No signs of gonorrhea were present, and also no tuberculosis. The negative results of the incision, combined with all the preceding features, brought him to the conclusion that this was a case of *lues*. The slow bilateral effusion in the knees, the slight pain, the insignificant functional disturbance, the changing of the symptoms, and the failure of all treatment, were all facts in favor of syphilis. As acquired syphilis was excluded with certainty, it could only be a case of late hereditary syphilis. The favorable result following specific treatment justified this diagnosis.

The family history of the patient disclosed the following facts: The patient's father was a physician, and became infected with syphilis on the hand while attending an accouchement, in 1872. He married in 1877. His wife, who was still alive, stated that upon several occasions he had had eruptions on the face, and took iodide of potassium.

Maternal History.—First pregnancy in 1878. Premature birth. Child died a few hours after birth. Second pregnancy, 1879. Miscarried at five months. Child dead. Third pregnancy, 1880. (Jordan's patient.) A normal, healthy boy. No affections. Fourth pregnancy, 1883. Aborted at two months. Patient's mother, in 1886, had a stroke of apoplexy, but completely recovered. In 1887 she had an ulcer of the soft palate, which rapidly healed under anti-syphilitic treatment. The patient's father spent nine

months in an asylum, in 1882, for some brain trouble. Marked improvement. In 1883, committed suicide.

Diagnosis in the patitent's case was latent hereditary syphilis. *Treatment.*—Sodium and potassium iodide.

Result.—Complete recovery. In November, patient resumed his duties as an army officer. This case is considered a typical one of latent hereditary syphilis, with a single localization.

Case II.—Was one of bilateral exudative gonitis, combined with keratitis parenchymatosa, in which complete recovery followed antisyphilitic treatment. The history of the case is as follows: Patient, boy, five years of age, came to the clinic in July, 1895, suffering from a bilateral inflammation of the knee-joints; the knees were swollen, and the ends of the bones considerably thickened. There was also a keratitis parenchymatosa. December 15, 1895, after a course of treatment, the patient was discharged. In January, 1901, trouble appeared in the eyes. In the spring of 1903, the patient, who was now twelve years old, was again examined, and found healthy. On the left cornea some cloudiness, due to scar, was found. This lessened the field of vision considerably. The joints were found to be normal. With the exception of the scar on the cornea, no evidence of syphilis could be detected.

Family History.—Father had an ulcer on the penis in 1881. Married in 1886, or five years later, and infected his wife in about a month. Symptoms in mother were roseola, condyloma of labia, and mucous patches in throat. By October 28, 1886, all symptoms disappeared under treatment. In 1887, gave birth to child, which died two days after birth. In 1888 another miscarriage at six months; fetus dead. In 1889 again miscarried at six months; fetus dead. In 1890, the fifth labor was normal, and a boy, the herein-mentioned patient, was born. The next, or sixth, labor was normal, and the child, which at this time was nine years old, was anemic and suffers from headaches. The seventh pregnancy: Premature birth, stillborn child. In 1895, eighth pregnancy, normal delivery at term; child at this time was seven years old, and healthy. The ninth pregnancy was again premature; fetus dead. The last pregnancy occurred in 1898; labor normal, and child healthy. This case substantiates Fournier's observation that in a syphilitic marriage the birth of a healthy child does not warrant that the children which may follow will be healthy; but, rather, that a syphilitic child follows a healthy one. In this case the period of latency was five years.

Hunicken (Brunic).[5] Case of syphilis hereditaria tarda. The mother of the patient, who had always been healthy, was infected by her husband in the second month of her pregnancy. The corroborative symptoms of the mother's syphilitic infection were condyloma of the great labia and anus; roseola; angina; and periostitic headache. The symptoms all disappeared after six months of antisyphilitic treatment (inunctions). It was expected the mother would miscarry. On the contrary, however, labor occurred at term, and a healthy boy was born. He remained healthy, with no evidence of syphilis; learned to walk when two years old; was vaccinated at age of three years. At nine years old he complained of pain in the knee on walking. This was followed by swelling of both knee-joints. Diagnosed simple synovitis. Was treated with ice, compression and rest for three weeks, with no improvement. At this time both tibiæ were discovered to be highly sensitive to the touch. The diagnosis was changed to latent hereditary syphilis, and the trouble, after four weeks' treatment by inunctions and potassium iodide, entirely disappeared.

Barthelemy [6] Case.—A man contracted syphilis and was treated by Ricord for eighteen months, at the end of which time he married. For twenty-five years following he had no manifestations of syphilis. His wife bore him five children, all at term, except the last, when labor occurred at eight months. First child was treated by Millard for submaxillary ulcerative lesions, which were diagnosed scrofulotuberculous lesions. When Barthelemy saw this patient he took these lesions to be local bacillary lesions. She had become a woman, twenty-five years of age, and had given birth to a healthy child one year previously.

Second child, a son, when twenty-three years old, was treated for two years for acquired syphilis. Her third child, at this time a girl of twenty years, is the subject of this case. She has never had any stigma of syphilis either on her body, teeth, eyes or ears. A month previously a bulla, the size of a fifty-cent piece, was noticed. This was thought to have been caused by a burn or stinging of an insect. Burning and itching sensation severe. Became more intense and deeper from day to day, until a large granulous wound was present, which showed all the characteristics of a tertiary ulcero-circinated syphilide and a nummular gumma of the skin, which diagnosis Fournier confirmed, without reserve. The gumma was located on the knee, and appeared twenty years after birth.

Gaucher (E.), Lacaperre and Bernard (H.).[7] *Latent Hereditary Syphilis, with Dental Dystrophia.* Female, nineteen years old, was brought to the Hospital Saint Antoine, March 14, 1900, in a state of semi-coma. Examination revealed a right hemiplegia, with aphasia. Patient had given birth to a child a month previously. Diagnosis made at the time was puerperal infection and metritis; bilateral phlebitis of the thighs; pulmonary embolism, which accounted for the pain in the thorax. To explain the hemiplegia and aphasia it was supposed to have been caused by a fibrinous coagulation in the heart, which is slightly dilated. Patient positively denies any venereal infection, and of her father's history nothing could be learned. The patient's child died a few days after birth, showing no trace

whatsoever of syphilis. The appearance of the teeth attracted attention, and suggested the possibility of syphilis, which suggestion was followed out, and the patient placed on daily inunctions, and four grams of kali iod. internally. Marked improvement followed immediately, and the patient was discharged from the hospital May 24, 1900. One year later (April 21, 1901) patient returned to the hospital for consultation. There were present tertiary cutaneous gummata located on the legs. The diagnosis was latent hereditary syphilis. Dental dystrophia revealed the presence of hereditary syphilis at twenty years of age. No previous accident would suggest the existence of syphilis, but a few months later the appearance of gummata on the legs and the effects of treatment confirmed the diagnosis.

Lannelongue[8] mentions a case of a young man, thirty-four years old, who had a typical gummatous ulcer on one of his legs, the nature of which had not been suspected until the patient consulted Lannelongue, who diagnosed latent syphilis of hereditary origin. He mentions also three more cases of latent hereditary syphilis, in young girls who were about to be married, and who never knew that they were thus afflicted:

Case I.—Young girl, from a syphilitic father. Suffered with a gumma of the leg. *Case II.*—Young girl, twenty-three years old, for past four years affected with a phagedenic serpiginous ulcer of the leg. *Case III.*—Young girl, twenty years old, affected with gumma of the soft palate.

Anthony (H. G.).[9] Twenty years ago a man acquired syphilis. He married while the roseola was present, and immediately infected his wife. A child was born three years after the marriage. Eleven years ago, when the child was six years old, the author examined the family. The father and mother showed unmistakable evidence of the disease, but the child was free from symptoms of hereditary syphilis. Since this examination the mother, knowing that she herself had had syphilis, has always been very solicitous regarding the welfare of her daughter, and watched for skin eruptions or other possible symptoms of the disease, and up to this time she had never observed anything of a suspicious nature. In October, 1903, she brought her daughter to Anthony again. She was seventeen years old, and was found to have a circinate, ulcerating, tubercular syphilide, situated on the anterior surface of the chest. There was nothing in the history of the case which would in any way suggest a possible extragenital infection, and genital infection could be excluded as thoroughly as it ever can be. Born of a syphilitic mother, who was known to be syphilitic at the time of conception, there is every reason to suppose that this is a case of hereditary syphilis, in which no appreciable evidence of the disease was present up to the seventeenth year of life.

L. Duncan Bulkley[10] reports the following case: Mrs. H., aged twenty-four years, fairly well developed. When first seen there were the active elements of a tubercular eruption upon the forehead, right ear, arms, knee and back. On the left arm there were two patches of a dull red color, about an inch and a half in diameter, composed of curved lines, or rows of tubercles, which have advanced, leaving a scar tissue behind, which later surrounded the elbow. The right arm was quite similarly affected. On the shoulders was an eruption, dark red, or copper-colored, with some crusting in places, composed of irregular patches of tubercles, and cicatricial tissue by the side of the more recent disease. The eruption extended down the back six or eight inches. Near the left knee there was a patch of the same form of lesion, and a few scattered tubercles on the upper lip. All portions of the eruption presented the same features, composed of tubercles of a dark-red or coppery color, elevated from one to two lines above the surface, either touching each other, or separated by an erythematous redness. The cicatrices are all alike; supple, mostly white. The more recent ones stained, and slightly depressed.

In the middle of the forehead there was a depression in the bone, pyramidal in shape, the apex resting at the bridge of the nose, and being about two inches wide at the base. Of the origin of this she could give no exact account. It had taken place slowly, beginning, she thought, at about sixteen years of age. There had never been any externally discharging ulceration there. When five years old she had a deep sore near the ankle, which lasted four or five months, and which left a scar. Two years afterward, when she was seven years of age, the present eruption first made its appearance, and has continued since, a period of fourteen years. She had been under medical treatment off and on, but never with any great success. Her family history was not as clear as could be wished. She thought her father was healthy. A sister, thirty years of age, she said, had the same eruption; and her sister's children were also affected. She herself had been married seven years, and had had four children, two of which are dead. This patient remained for a time under antisyphilitic treatment, and improved nicely, but disappeared before sufficient time had elapsed to accomplish a cure, so the ultimate results of treatment cannot be stated.

The two cases reported by Willis S. Anderson[11] contain several points of interest. The histories are as follows: *Case I.*—M. B., a girl, aged sixteen years. *Family History:* Mother apparently healthy, with no history of syphilis. Father not seen. Mother has had nine pregnancies. The first and second children were boys, who are alive and healthy; the third and fourth were premature, at eight months; bodies decomposed. The fifth was the present patient. The sixth, seventh and eighth are alive and healthy. The ninth died of pneumonia when nine months old. *Present History of Patient:* General health has been fair. Eighteen months pre-

viously she had pain in her legs for a number of weeks. Has had enlarged glands in the neck for years. About two months before coming to the clinic, she noticed a pea-like swelling at the mucocutaneous junction on the left side of the septal cartilage of the nose, which she thought was a cold sore. This increased in size, spreading to the upper lip, and into the nose, especially attacking the septum. There were no pain or constitutional symptoms. The examination of the nose revealed an extensive ulceration of the whole cartilaginous septum, including the columna, and of the upper lip. The ulcerated area was covered with thick crusts, and there was a foul, irritating discharge from the nose. The whole of the septal cartilage was nearly ready to slough out. The next time the patient was seen the entire cartilaginous septum, including the columna, was removed. The parts were kept clean and potassium iodide given internally. The condition improved and the ulceration ceased.

Case II.—M. O., a girl, aged fourteen years. *Family History:* No history of parental syphilis could be obtained. Mother always healthy; has had four children. Three alive and well. One died, aged seven months, of pneumonia. No miscarriages. Father is in excellent health, and denies ever having had syphilis. *Personal History:* Patient, when one year old, fell and struck on her nose, but no permanent injury resulted. Her general health has always been good, and nasal breathing free. Six months before coming under observation she commenced to have obstruction to breathing through the right side of her nose. No cause could be discovered, unless possibly it was the result of boxing with her brother. The obstruction gradually increased, but was unaccompanied by pain or constitutional symptoms. She was brought for treatment, because of the obstruction, commencing deformity of the nose, and enlargement of the lymphatic glands just below the angle of the jaw on the right side. Examination revealed a red, globular tumor, of about the size of a pea, attached to the right side of the septal cartilage, well forward. Just behind the anterior growth could be seen another globular tumor filling the nasal passage. There was bulging of the nose exteriorly, corresponding to the right ethmoid cells. As the nasopharynx was filled with the growth, it was evident that the tumor filled the whole nasal passage. There was marked swelling of the glands of the right side of the neck. The tumor in the nose was fairly firm in consistence, not painful, and did not bleed readily when touched. The glandular mass in the neck was not accompanied by any pain or tenderness. No ulcerations was observed in the nose, and there was only a moderate acrid discharge. The growth in the nasopharynx had an angry appearance, and was covered with thick, tenacious mucus. The general health of the patient was little impaired. Her symptoms could all be accounted for by the nasal obstruction, and the pressure of the growth. The diagnosis of late hereditary syphilis was made by exclusion, and the patient placed on kali iodide internally, and mercurial inunctions, with the result that the growth gradually melted away, and the enlarged glands disappeared.

At the present time I have under my care a girl, sixteen years old. She is one of seven children, all healthy and robust. Patient's menstruation first appeared when she was a little over fifteen years of age. About this time patient suffered intensely from pains in the legs and nocturnal headaches. On the right foreleg were noticed elevated red spots, as the patient describes them, varying in size from that of a split pea to almost, if not quite, the size of a twenty-five-cent piece. Within a month the left foreleg presented a similar condition to that on the right leg. When the patient first came under my observation she presented typical ulcerating gummata on both legs, without any other evidence of hereditary taint, and an absolutely negative history as to any skin eruption or sickness of any character in the earlier years of her life. The mother of the patient is a subject of ichthyosis, and states that she had had two miscarriages, occurring without apparent cause; the first at between five and six months, and the second at between six and seven months. On the right hip of the mother examination reveals a scar which resembles that following a syphilitic ulceration, although she denies all syphilitic history. The patient's father refused to be examined or interviewed. Under antisyphilitic treatment our patient made a prompt recovery.

Fournier[12] says that latent hereditary syphilis may manifest itself at any age, from young adult up to old age, less frequently in old age, at fifty-one, even at sixty years, and older.

We have grown away from the teachings of Kaposi, Barenspring, Lang and others, who state that cases of latent hereditary syphilis are not authentic. They say that if this disease be congenital or hereditary, there must have been infantile manifestations. We accept as facts the teachings of Fournier, Neuman, Sigmund, Hebra and others, that these cases are authentic, and do occur.

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Correction.—Dr. H. F. Stoll has asked us to correct an error which occurred in a recent article by him on "The Diagnosis and Differential Diagnosis of Incipient Pulmonary Tuberculosis." The corpulence is obtained by dividing the weight in pounds by the height in feet: not the height in inches, as was stated in the article.

A PRELIMINARY REPORT UPON THE SPIROCHÆTA OF SYPHILIS.

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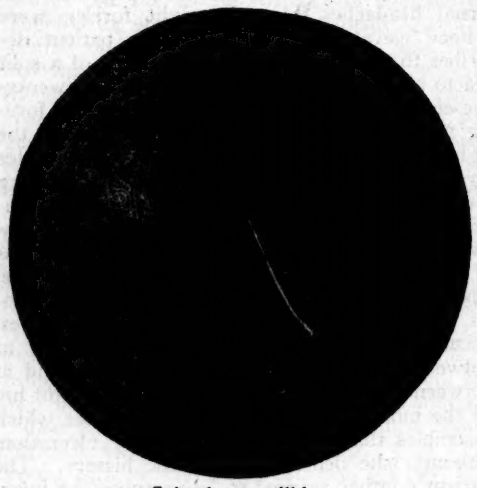
DURING the past two months I have examined a number of syphilitic subjects for the purpose of

Fig. 1.



Spirochæta pallida.
x 1000.

demonstrating and studying the morphologic features and staining properties of the *Spirochæta*, recently described by Schaudinn and Hoffmann[1] and other European investigators, as present in the various lesions of primary and secondary syphilis.

Owing to its extreme rarity the detection of this micro-organism is attended by the greatest difficulty and requires painstaking microscopic search of a number of specimens. A very decided obstacle to examination is the embarrassment encountered in staining the organism with sufficient distinctness to be easily recognized. After many unsuccessful attempts with different solutions of Giemsa's stain, made according to the many formulæ recommended, I finally succeeded in having made for me by E. Leitz and Eimer & Amend, of this city, a solution which stains the organism distinctly and sharply in a few minutes instead of twenty-four hours as recommended for the Giemsa stain.

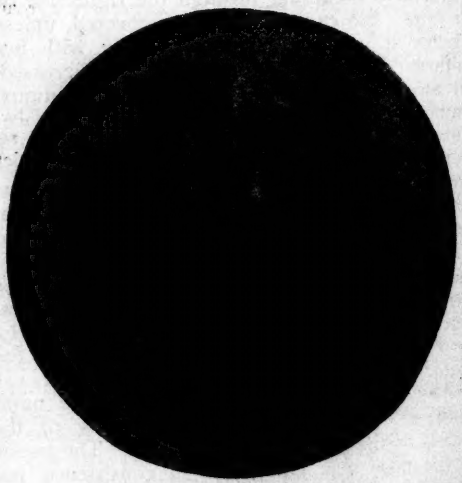
The material for this work was obtained by me in twelve cases of primary and secondary syphilis, and included material taken from chancres, inguinal glands, condylomata, papules and mucous patches. Scrapings were made from the chancres with a sterile scalpel. From the inguinal glands I obtained the juice and some débris of tissue by puncturing them with a large hypodermic needle, and moving the needle about, so as to break up the tissue. The condylomas were clipped off and squeezed to obtain their contents, while the papules were incised through their centers and scraped with a Volkman spoon.

Smears were made in the usual way with this material, spreading them as thinly as possible, and stained by one of three methods: Giemsa's original method, as used by Schaudinn and Hoffmann, Oppenheim and Sachs' method and De Marino's method.

The following is Giemsa's method: Fix in absolute alcohol for half an hour. Then immerse for twenty-four hours in the following solution: (1) Twelve parts of a solution of eosin (2.5 c.c. of one per cent. eosin solution in 500 c.c. of water). (2) Three parts of azur I (one part dissolved in 1,000 parts of water). (3) Three parts of azur II (solution of 0.8 parts per 1,000 of water). Wash in water.

The method of Oppenheim and Sachs is as follows: The slides, being first dried in the air, are placed in the following solution without fixation: One hundred c.c. of five per cent. carbolic acid solution in water; 10 c.c. of a concentrated alcoholic solution of gentian violet. The slide is dried slowly by very gently heating it over the Bunsen flame, until it begins to steam. Wash in water and dry with filter paper. The *Spirochæta* will appear stained very distinctly blue, and appear larger than those stained by Giemsa's stain, I think because the alcohol in the latter

Fig. 2.



Spirochæta pallida.
x 1400.

dehydrates and shrinks the germ. This process has the advantage of staining in a few minutes and is probably the best for clinical purposes.

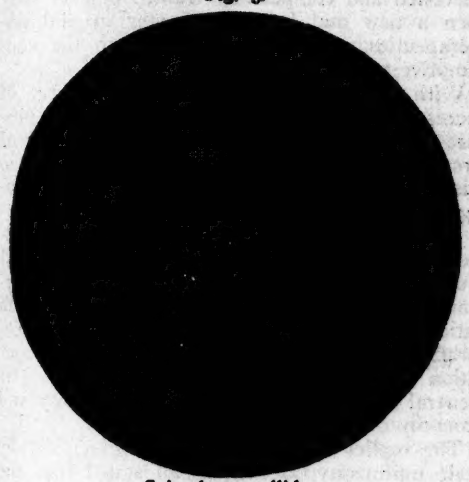
De Marino's method consists in staining the slide without fixation with one c.c. of Marino's blue (consisting of 0.10 c.c. of azur blue and 50 c.c. methyl alcohol). Allow this to remain for ten minutes and without washing drop on the slide

1 Schaudinn and Hoffmann, Arbeiten aus dem kaiserlichen Gesundheitsamte, Vol. xxii, 1905.

one c.c. of a watery solution of eosin 1:50. After two minutes, wash and dry. The *Spirochæta pallida* will be stained a faint orange-pink. On account of the rapidity of this method, it is also preferable to Giemsa's. The stain is not so distinct, however, as Oppenheim and Sachs'. On account of the tenuity of the object I used an oil immersion $^1/_{12}$ and $^1/_{16}$ Leitz.

The accompanying illustrations show some of my early results with these methods. Owing to the difficulty of finding the *Spirochæta* in smears,

Fig. 3.



Spirochæta pallida.
X 1000.

I have as yet finished the examination of but five of the twelve cases, and in all five I succeeded in finding the germ. The remaining cases are now in process of examination, and the results will be reported in a later paper in which my work will be detailed in full.

My impression from the examinations thus far concluded is, that while the *Spirochæta pallida* is more or less constantly present in syphilitic lesions, yet it requires patient and protracted search of the specimens to find it, and then usually in isolated form.

119 West Eleventh Street.

SANATORIUM PROVISION WITH INDUSTRIAL OPPORTUNITIES FOR INDIGENT CONSUMPTIVES.[1]

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AND
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THE narrow limitations in the way of remunerative employment which must necessarily be imposed upon the consumptive whose disease is not thoroughly arrested, make the problem of his self-maintenance during treatment a difficult—not to say serious—one.

Exertion, either physical or mental, if not wholly proscribed, must be permitted only with the greatest degree of moderation, and under most careful supervision, if harm to the patient is to be avoided. The disastrous results of overexertion or emotional excitement on the part of tuberculous invalids with unarrested lesions, are familiar to every physician.

Thus the list of possible occupations open to the consumptive during the active stage of his disease is a very small one, and the institution, therefore, which has for its object primarily the arrest and cure of the disease, and secondarily the self-support, in whole or in part, of the patient during treatment, is assuming at the start a rather paradoxical rôle. That the difficulties in the case are real and often insurmountable, is evidenced by the failure of several institutions of this character to survive, although in some instances ample influence and financial support were not lacking. Our inquiries among those which are still in operation, in America at least, have not resulted in reassuring reports, as will appear presently.

On the other hand, that the patient whose disease is quiescent or partially under arrest, may under certain conditions (which pertain chiefly to climate and intelligent supervision) safely undertake light occupation is undoubtedly true.

It is, indeed, probable that among the chief reasons why these institutions have not so far met with greater success are: *First.*—That the industrial limitations to which a tuberculous patient is necessarily subject have not been fully recognized by the promoters, and *second*, that no adequate provision has been made for the preliminary care and education of the patients during the active stage of the disease.

Most of the closed sanatoria now in existence were designed solely for the curative treatment of tuberculosis, and even those purposing to reach the working classes pretended to little more than the hygienic education of the patients with the arrest of their disease.

It is difficult to alter the original purposes of such an institution at a period more or less remote from that of its establishment, except by adding to it new and separate units, and, in most instances, this has been impracticable owing to the lack of space and various other limitations. In fact, it has been almost universally true that the problem of finding ways and means to maintain the original design of such sanatoria has been quite sufficient for the trustees and managers, without encumbering themselves with expensive experimental innovations. When industrial features have been introduced into previously existing sanatoria, therefore, it has been, as a rule, in a dilettante sort of way, and usually without a well-thought-out plan and sufficient funds to insure success.

It is so easy to speculate on the results which could be obtained, theoretically at least, in the ideal sanatorium with provision for industrial features, that the wonder of it is the public press,

[1] Prepared for the symposium on Sanatorium Treatment of Consumption at the first annual meeting of the National Association for the Study and Prevention of Tuberculosis, May 19, 1905.

ever seeking sensational matter along the lines of tuberculosis, has not long ago exploited the idea.

Such an institution, let us say, should consist of three main divisions—infirmary, pavilion and industrial department, the first two forming complete units each, the last divided into as many distinct units as there are branches of industries undertaken. For instance, agriculture in its various branches; stock-raising, including poultry farming, bee culture, etc.; certain manufacturing industries, and the administration of the institution itself in its various phases.

The new candidate for admission to such a sanatorium is, of course, first taken into the infirmary. Here he is kept during the active stage of his disease (or until he is found to be an unsuitable case and discharged) and is given that medical supervision, care, nursing and instruction so essential to a successful result. When his disease is quiescent, his temperature and weight normal, and his condition otherwise permits, he is transferred to a pavilion where, under close observation, suitable exercise tests are made. These tests determine his physical qualifications for work of any kind, as well as to which branch of the several industries, at the command of the sanatorium, he is best adapted by his individual peculiarities, physical and mental. As his disease is arrested, his exercise is directed into those industries for which he seems best fitted, and again he is transferred to one or another of the units of the industrial department. Finally, he is sent back into the world with restored health and a new vocation to resume his place among breadwinners.

Some such plan has, no doubt, occurred to the mind of every physician and humanitarian who has made himself familiar with the difficult problems, medical and sociological, which tuberculosis suggests. Such a plan, however, to present much prospect of success, must possess greater resources than are usually available for innovations of this character.

The original cost of the plant would exceed what can ordinarily be obtained with difficulty, for old and tried philanthropies, and for several years at least, the cost of administration, which could not but reach somewhat startling figures, would have to be provided for elsewhere than from the earnings of such an institution. The plan would, after all, appear in the light of an experiment with at least a considerable chance of failure, and thus the difficulties in securing the necessary funds to begin with, must be apparent.

Only a few days ago there appeared in the columns of one of the New York dailies an account of a proposed plan to establish on a huge scale what might be termed an industrial community for tuberculous invalids, near Las Vegas, in New Mexico. According to this report, the proposed plan is purely philanthropic in object, and, to start with, has an equipment in lands and buildings so vast that, taken together with the colossal extent of the work proposed and the number of patients which it is expected to care for (from five to twenty-five thousand), those of us who have experienced the vicissitudes and difficulties incident to more modest establishments may be pardoned for entertaining some skepticism as to its eventual success. Nevertheless, it is conceivable that even such an immense institution, if properly organized into compact and scientifically administered units, and the whole wisely and judiciously governed by a board of disinterested and competently trained officers, may open a new and brilliant chapter in phthisiotherapeutics, especially as applied to the consumptive poor.

With the idea of ascertaining the degree of success attained thus far in attempting to provide employment for consumptives, a number of circular letters was sent to the institutions in this country and Canada known to be thus engaged. The following questions were asked:

(1) Number of cases furnished with employment? (2) Character of employment? (3) Number of cases reporting or observed afterward? (4) General relative condition of such patients as regards weight, fever, cough, expectoration, etc., in comparison with previous condition? (5) List of suitable occupations? (6) General information as to the practicability and economy of the plan?

The replies were characterized principally by their uniformity, and while all stated that the work was as yet in an incipient stage, there was a rather disheartening unanimity in the admission of failures thus far.

Considering the subject purely from the standpoint of economy, as one physician of very considerable experience tersely puts it, "the slight saving in service scarcely compensates for the extra trouble of supervising the very irregular work obtained." On the other hand, there is a very general admission of the fact that some employment is, in many cases, not only possible, but even advisable.

The difficulty of obtaining accurate statistics is dependent largely upon the fact that the work is, as yet, in its most experimental stage, but it is apparent that individual variation renders judgment as to capacity for work as fallacious as it is in the whole matter of prognosis. Institutions established with the idea of permitting patients to support themselves and their families by their own exertions, while enjoying the benefits of open-air treatment under excellent climatic conditions, however well managed and however generously endowed, have proven failures one and all. On the other hand, under the most unhygienic conditions and in the face of almost insurmountable difficulties, most gratifying results have been attained in individual cases by workers in the free clinics of our larger cities.

Much of the discrepancy in the results of the work accomplished by physicians in charge of

sanatoria and those in private practice, is due, doubtless, to the fact that the standards of judgment must necessarily vary in a marked degree. On the one hand, we have the most careful supervision actuated by the desire to obtain statistical results comparable to those of competitors; on the other, actual necessity compelling too short a time limit to the treatment recommended as most efficacious.

In striking contrast to the discouraging reports of the philanthropic institutions so far in the field, is the analysis of the histories of patients admitted to the Loomis Sanatorium. Of fifty cases taken at random, and consisting of both early and advanced cases, the average duration of the disease at the time of admission was over three years, and during these three years 70 per cent. had been self-supporting. Still more striking is the fact that, in the case of twenty-five advanced cases, with fibrosis predominating, the average duration was five years, and during these five years 68 per cent. had been self-supporting.

With a view of determining the relative merits of complete rest and gradually increasing exercise in quiescent cases, some experiments were carried out at the Loomis Sanatorium Annex during the autumn of 1902. The results were interesting as bearing upon the present question. "Twenty patients, all with quiescent lesions, without rise in temperature, and up to, or a little above, normal weight, were selected and divided into two classes of ten patients each, known as Class A and Class B, respectively. In Class A there were five men and five women. . . . In Class B there were six men and four women. The experiment consisted in placing Class A on greatly increased exercise (hill climbing) for a period of two weeks, during which time Class B was upon a regime of enforced rest. The following two weeks the conditions were exactly reversed, Class B taking the increased exercise and Class A the enforced rest. Observations were made of pulse and temperature for one week prior to the test, during the test, and for a week following the test. Changes in weight were recorded under the various conditions, as were the effects produced upon cough and expectoration."

Passing over the details of the experimental test, the following tables show the summary of results in the two classes:

Summary—Class A.	Exercise T.	Exercise P.	Rest T.	Rest P.
Weekly average temperature and pulse prior to tests	98.3	92	98.4	86
Weekly average temperature and pulse during tests	98.3	96	98.3	96
Weekly average temperature and pulse after tests	98.3	89	98.6	91

		Period of increased exercise.	Period of enforced rest.
Total number of pounds gain in weight		14 7/16	16½
Total number of pounds loss in weight		2¼	½
Cough	Increased	—	—
	Absent	1	2
	Decreased	6	5
	Stationary	4	1
Expectoration	Increased	—	—
	Stationary	2	3
	Decreased	6	3
	Absent	3	2

Summary—Class B.	Rest T.	Rest P.	Exercise T.	Exercise P.
Weekly average temperature and pulse prior to tests	99.3	100	98.4	96
Weekly average temperature and pulse during tests	98.3	100	98.6	100
Weekly average temperature and pulse after tests	98.4	96	98.6	100

		Period of enforced Rest.	Period of increased exercise.
Total number of pounds gain in weight		26	13¾
Total number of pounds loss in weight		1	2
Cough	Increased	2	2
	Stationary	4	3
	Decreased	4	4
	Absent	—	—
Expectoration	Increased	3	4
	Stationary	4	2
	Decreased	2	3
	Absent	1	1

From the latter it will be seen that the average maximum weekly temperature actually fell during and following the test in both classes, while even the pulse was not materially affected. With the weight there was a small balance in favor of the period of enforced rest in both classes, but it must be remembered in this connection that most of these patients were above normal weight before the experiment was undertaken. In Class A, during the period of increased exercise, there was a total gain in weight of 14 7/16 pounds and a total loss of 2¼ pounds, while during the subsequent period of enforced rest there was a total gain of 16½ pounds and a loss of ½ pound. In Class B, during the period of exercise, there was a total gain of 13¾ pounds and a loss of 2 pounds, whereas during the antecedent period of rest there was a total gain of 26 pounds and a loss of 1 pound. The effect of the experiment upon the symptoms may be gathered from the tables. It is worthy of remark, however, that in every instance the patients felt better during the period of increased exercise.

Following these exercise experiments in the autumn of 1902, an attempt was made at the Annex of the Loomis Sanatorium to organize a working corps of quiescent cases among the men.

The work available at the time consisted of certain kinds of farm labor: caring for live stock and improving the walks and wagon roads (chopping wood was attempted, but abandoned because of its bad effects upon patients). Remuneration was offered sufficient to enable a patient nearly to meet his expenses by working four hours per day, divided into from two to four shifts. Fifteen men were selected as physically able, and permitted to work from one to six hours per day, each. The novelty waned, however, and, within the month, there was scarcely an applicant, although no harmful effects had followed in any case. The plan had to be abandoned for lack of inclination on the part of the patients.

This spring a slightly different plan is being tried as an experiment. A moderately large garden plot is turned over to one of the patients of exceptional intelligence and some executive ability, who is to organize his working corps among the patients on a cooperative basis. All expense is to be borne by these patients, who, of course, will furnish among themselves the necessary labor, all to be under close medical surveillance. The entire product of the garden, the sanatorium agrees to purchase at market prices. So far the interest and enthusiasm in this plan are apparently more substantial than was the case under former conditions, possibly because of the element of chance in the result, or, perhaps, because of the independent phase which the scheme presents.

It is apparent from the experimental work quoted that moderate exercise, carefully supervised, may prove not only permissible but beneficial in certain cases, and this is substantiated by reports from institutions having some years of actual experience in providing such exercise. Moreover, consumptives not only can, but actually do remain, productive agents for many years after the appearance of the disease. It is equally true, however, that every attempt thus far to organize even moderately large numbers of phthisical patients into self-supporting communities has been uniformly unsuccessful.

The obvious conclusions drawn from what we have learned in the course of our own experience, and as a result of our inquiries, are: *First.*—A sanatorium should be upon a sound financial basis, independent of its earning capacity, before entering industrial fields. It cannot safely rely upon financial returns from its industrial features, since the latter are fully as apt to increase as to decrease the expense of administration; *second*, if industrial features are to be introduced, as wide a range of occupations as possible should be at command, in order to meet individual requirements in both sexes, and suitable provision should be made for permitting very light work and short hours to start with in all cases.

It is scarcely necessary to add that no patient should be permitted to do work of any kind until sufficient time has elapsed after his admission to establish his physical ability. Medical supervision should be unremitting throughout his sanatorium residence, and allowance in time limit of residence should be made for the relapses which will inevitably occur wherever any great number of consumptives is employed.

Decatur Medical Society.—The September meeting of this Society was in honor of Dr. William Osler. It was held Tuesday evening, September 26, the following program being given: "William Osler: His Life, Work and Influence," J. N. Randall; "Chloroforming Sexagenarii," W. J. Chenoweth; "Some Selections from Osler," H. C. Jones.

THE ULTIMATE RESULTS AFTER THE BLOODLESS REPOSITION OF THE CONGENITAL HIP-JOINT DISLOCATION.[1]

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AMONG the deformities congenital dislocation of the hip-joint has aroused a great interest during recent years, not only on account of the fact that methods have been developed which pretend to accomplish a complete cure of this deformity, but also on account of the divergent opinions of the different surgeons about the efficiency of these methods.

It is mainly upon the Lorenz method of reducing the congenitally dislocated hips that interest and discussion has been concentrated. Since enough time has elapsed since Lorenz' visit to this country, we are at the present time able to discuss the results of patients originally operated upon by Lorenz. But before going into these details I wish to make a few remarks upon the classification of the primary and secondary results of the operation.

We know that the pathological anatomical qualities of the two parts which form the joint—the socket and the upper end of the femur—are subjected to such variations, that we need not wonder if among one hundred dislocated hip-joints scarcely two of them correspond exactly. Development of the socket and shape of the same, development of the femur head and its shape, the angle of inclination of the neck, the length of same, the angle of twisting of the neck against the frontal axis of the femur condyles, the length of the capsule, its insertion, the hour-glass-shaped contraction of the same and the entrance to the pocket-shaped recessus of the socket; all these conditions are apt to cause a variation in the pathological anatomical picture in its minute details. In consequence of this we are able to reconstruct an uninterrupted series of cases, beginning with those which correspond in their anatomical qualities to traumatic dislocations, and ending with those which present the highest degree of all the graver anatomical changes.

Briefly speaking, we find the following anatomical changes in the socket, capsule and femur head: The socket is shallow; this shallowness is partly caused by the presence of more or less resistant fibrous connective tissues, which may sometimes show some signs of fatty degenerations, and which fills up the preformed socket. The thickness of the bottom of the socket which in normal cases is formed by the Y-shaped cartilage alone is therefore in all cases of a congenitally dislocated hip considerably increased. The rim of the socket, on the other hand, is only slightly developed. This fact may be due to the more or less conspicuous circumstance that the socket is filled out, which has been alluded to above; but in numerous cases there is a real de-

1 With a report of 33 cases operated upon by A. Lorenz in 1902.

fective development of the rim. In such cases the posterior rim is always the best developed part, whereas the anterior and superior rim may be wanting altogether.

The head is in a great majority of cases deformed; very often it may be found to be flattened in the shape of a mushroom head, its cartilaginous stratum near to the circumference being turned over. The neck is usually shortened; the angle between the neck and the shaft of the femur is usually decreased. Normally the axis of the neck is twisted against the frontal axis of the condyles of the knee at an angle of about 30 degrees. In cases of congenital hip dislocation this angle may be found either increased or decreased. The decreasing of the angle does not imply any difficulties in applying the Lorenz method. Quite the contrary, however, is true about the increasing of this angle, as will be explained later on.

The capsule covers the head of the dislocated femur more or less tightly. The anterior part of it is braced like a drum skin over the empty socket, by which means a pocket-shaped recessus is formed—the so-called pocket-shaped recessus of the socket. The entrance to this pocket-shaped recessus lies in the superior posterior quadrant of the socket and connects there by means of a small and often narrow hose-shaped passage with the part of the capsule which covers the head.

This narrow passage is described as the hour-glass-shaped contraction of the capsule, or, if its lower part is only considered where is is inserted in the posterior rim of the socket and in the anterior part of the capsule, which is braced over the empty socket, we find it also described as the entrance of the pocket-shaped recessus of the socket.

It is therefore easily understood that the therapy has to be individualized in each case, according to the anatomical conditions, and that the different types must necessarily be treated by different measures with reference to fixation and to the after-treatment.

Favorable anatomical conditions, that is, a general state of the joint which makes it resemble a normal joint, not taking into account, of course, the present dislocation, unfortunately are formed in scarcely more than 10 per cent. That means that in more than 90 per cent. we have to resort to special artifice in order to improve the lacking stability and in order to hold the head securely within the socket.

One of these maneuvers consists of the widening of the anterior wall of the capsule and the placing of the head on the horizontal branch of the pubic bone. By complying with this rule we may always expect good results if underdevelopment and shallowness of the socket is combined with slight anatomical changes of the upper end of the femur; we may say that at least 50 per cent. of all cases may be summed up under this class.

The stretching of the anterior wall of the capsule is a maneuver which has to be executed with great care, and requires without exception a certain experience. The danger of fracturing the neck or the shaft of the femur is very imminent in case the operator does not know exactly how far to go, or with what force to proceed in order to get the wished-for result.

Statistics which show a rather low number of anatomical results are due in large part to the fact that the operator does not like to avail himself of the very valuable maneuver of stretching the anterior wall of the capsule because of the fear of an accident. This mode of procedure excusable as it might appear at the time of operation, retaliates later on, and must therefore be considered equal to an admission of not fully commanding the method.

This procedure (we may call it the primary reposition) in the majority of instances does not give an anatomical result, as the head can be found in front of the socket, leaning toward the horizontal branch of the pubic bone (pubic position), or in some cases even appearing underneath the skin *on* the horizontal branch of the pubic bone, sharply protruding like a chestnut (suprapubic position).

It is a mistake to consider such positions as ultimate results of a bloodless reposition, and Lorenz in dealing with them emphasized that the head has to be depressed by flexion, adduction, and inward rotation; a procedure which we may call secondary reposition. Such secondary repositions are distinguished by a very good stability of the head of the femur, which could not be held in the socket at all while performing the primary operation; and give as a rule excellent anatomical results, that means, exact reduction of the head into the socket combined with full motion of the joint.

These statements met with some incredulity, not only in Europe, but here in America, and in one of the publications published about a year ago, Ridlon gave vent to his opinion in this manner. In the meantime I was able to prove by means of an X-ray picture exhibited at the meeting of the American Orthopedic Society, Atlantic City, 1904, that such suprapubic positions can be changed into real anatomical positions.

It remains to consider the forty per cent. of cases which after the Lorenz method do not give anatomical replacements of the head. These cases comprise those in which the twisting of the neck toward the frontal axis of the condyles is very marked.

If the thigh of such a case is held in a normal position the neck is directed directly forward instead of toward the medial line. If we place the thigh, the upper end of which is in such a manner deformed in the so-called primary position of Lorenz, it is evident that the head is not able to emerge through the entrance of the pocket-shaped recessus into the socket, as this entrance is situated in the upper and posterior quadrant of the socket, whereas the neck extends straight from below in an upward direction. The axis of the

pocket-shaped recessus of the capsule and the axis of the neck of the femur run in this way in nearly opposite directions.

The head therefore rests at the entrance of the pocket-shaped recessus of the capsule without being encased by it. These conditions can never give anatomical positions with the primary position after Lorenz, but only so-called subspinal positions. The head leaves the place where it has been placed, wandering in an upward direction, and finds some resistance in the spina anterior superior ossis ilei, underneath which it fixes itself more or less securely. These positions can truly be called anterior superior redislocations. But the term "redislocation" must not prejudice us as far as the functional result is concerned. It must, however, be emphasized that a good functional result largely depends on the after-treatment and massage.

Among all muscles, especially the so-called pelvitrochanteric muscles, deserve especial attention —the gluteus medius, minimus and maximus. This requires a good deal of time, and unless the massage is continued for one and a half or two years, we cannot expect a favorable result. In case, however, the after-treatment is carried through in the right way, then we have the satisfaction quite often that even the examination by the Trendelenburg phenomenon gives a positive result. That means that the children are able to stand upon the limb operated upon and able to lift the opposite side of the pelvis.

With the subspinal position, of course, always some shortening of the limb is connected; we

CASES OPERATED UPON BY DR. A. LORENZ DURING HIS VISIT IN CHICAGO IN 1902. SUBSEQUENT TREATMENT DIRECTED BY DR. F. MUELLER, CHICAGO.

ANATOMICAL REPOSITIONS.

	Initials.	Age.	Side.	Date of operation.	Sex.	Gait.	Motion.	Results.
1	C. T.	3½	L.	X/18, 1902.	M.	Good.	Full.	VIII/17, 1903. Removal of the cast; depression of the head of the femur which was found on the horisontal branch of the pubic bone. XII/15. 1903. After-treatment.
2–3	M. B.	4	Bil.	XI/24, 1902.	F.	Normal.	Full.	IV/24, 1903. Removal of the cast. After-treatment.
4–5	L. E.	4	Bil.	X/24, 1902.	F.	Normal.	Full.	VI/24, 1903. Depression of the head like in case 1 on both sides VIII/28, 1903. III lost. II/5, 1904. After-treatment
6	W. M.	4½	L.	X/18, 1902.	F.	Normal.	Full.	IV/24, 1903. After-treatment.
7	B L.	4½	L.	X/15, 1902	F.	Defective.	Contracture in abduction.	V/17 1903. After-treatment III/15, 1904. Correction of the position in necrosis.
8	L. T.	4½	L.	X/22, 1902	F.	Normal.	Full.	VII/6, 1903. After-treatment.
9–10	B. K.	5	Bil.	X/16. 1902	F.	Satisfactory,	Right joint normal, left joint Somewhat rigid.	V/20, 1903. Depression on the left side like in case 1. X/20 1903. Redressement of the right limb which stood in abduction. XI/20 1903. After-treatment.
11	A. C.	5	L.	XI/2, 1902.	F.	Normal.	Full.	XII/12, 1903. Depression like in case 1. II/13, 1904 After-treatment.
12	D. A.	5½	L.	X/22, 1902.	F.	Normal.	Full.	Operated upon by J. Ridlon without success when three years old. IV/23, 1903. After-treatment. Died August, 1904, of typhoid fever.
13	A. L.	6	R.	X/10, 1902.	F.	Satisfactory.	Somewhat stiff, but progressing.	Operated upon by J. Ridlon without success when four years' old. IV/16, 1903. After-treatment.
14	W. M.	6½	L.	X/17, 1902.	F.	Normal.	Full.	IV/18, 1903. After-treatment.
15	H. B.	7	L.	X/24, 1902.	F.	Normal.	Full.	Operated upon by J. Ridlon without success when five years old. IV/18, 1903. After-treatment.
16	L. E.	7½	L.	X/13. 1902.	F.	Normal.	Full.	Treated without success by J. Ridlon when five years old. V/29 Depression like in case 1 IX/18. After-treatment
17	B. P.	7¼	L.	X/16, 1903.	F.	Normal.	Full.	IV/24, 1903. After-treatment.
18	E. L.	8½	L.	X/12, 1902.	F.	Normal.	Full.	V/18. 1903. Depression like in case 1. XII/18. After-treatment.
19	H. R.	8½	L.	X/22, 1902.	M.	Normal.	Full.	V/19. 1903. After-treatment.
20	C. T.	8½	L.	X/18, 1902.	F.	Satisfactory.	Somewhat stiff, but improving.	I/14. 1904 and II/14, 1905. Redressement of the stiffly abducted leg.
21	K M.	9½	L.	XII/2, 1902.	F.	Normal.	Full.	VI/8, 1902. After-treatment.

SUBSPINAL POSITIONS.

	Initials.	Age.	Side.	Date of operation.	Sex.	Joint.	Motion.	Results.
1	B. L.	3	R.	X/16. 1902	F.	Good.	Full.	IV/27, 1903. After-treatment.
2	H. T.	3	R.	X/31, 1902.	F.	Good.	Full.	V/5. 1903. After-treatment.
3	M. M.	3	L.	X/17, 1902,	F.	Good.	Full.	V/18 1903. After-treatment.
4	B. T.	3½	L.	X/17, 1902	M.	Good.	Full.	V/15. 1903. After-treatment.
5	T. V.	4	L.	XI/22. 1902.	M.	Good.	Full.	IV/25, 1903. After-treatment.
6	C. M.	4	L.	X/16. 1902.	F.	Good.	Full.	IV/18 1903 After-treatment.
7–8	L. M.	6½	Bil.	XI/22, 1902.	F	Good.	Full.	Depression of the heart on the left side. VII/10, 1903. XII/14, 1903 After-treatment.
9	C J.	7	L.	X/18, 1902	F.	Good.	Full.	IV/29, 1603. After-treatment.
10	C L.	7	L.	X/19, 1902	M.	Good.	Full.	IV/23 1903. II Cast VII/15, 1903. After-treatment.
11	N. E.	5	L.	X/20, 1902.	F.	Good.	Full.	Operated upon V/15. 1904, in order to obtain an anatomical replacement.
12	J. A.	5	L.	X/18, 1902.	F.	Good.	Full.	Operated upon X/26 1904, in order to obtain an anatomical replacement

have to remember that the head is fixed above the acetabulum instead of being in the socket. But in case we get a good stability the degree of shortening does not amount to very much. The limping in the cases of hip-dislocation is caused less by the shortening than by the telescopic movement which appears whenever the patients put some weight on the limb. A high sole of about one-half or three-quarters of the amount of the shortening caused by the subspinal position is as a rule sufficient to make the patient nearly normal.

Real redislocations, that is, posterior superior redislocations, should not be obtained at all. A well-developed technic knows how to exclude them during the time the patients are in the cast, and a careful after-treatment prevents the changing of a subspinal position into posterior superior redislocation.

After consideration of these points, we are fully justified in calling the subspinal position good result. Different experiments, however, have been made to eliminate the so-called subspinal position from the results of the reposition of the congenital hip dislocation altogether.

My researches and experience on this subject are very encouraging, and will soon be ready for publication.

Discussing the results which were gained in cases operated upon by A. Lorenz during his visit in 1902, I am able to refer to thirty-three cases left under my care, in twenty-one of which anatomical results were gained, whereas the number of subspinal positions were twelve.

Among the anatomical results depressions of the head which stood, after removal of the first cast in suprapubic or pubic position were necessary in six cases; function and motion in these patients became normal.

Stiffness of the joint operated upon followed in four cases. All these cases are improving under continuous treatment, so that in all of them good motion as an ultimate result can be assured. The cause for this stiffness was in some cases the advanced age of the children; in some others the insufficient exercise the children had in their first cast.

Taking into consideration the high average age of the children operated upon by Lorenz, the results, comprising over 60 per cent. anatomical cures and less than 40 per cent. subspinal positions, must be called good ones.

Among other reliable statistics compiled of cases operated upon between the age-limits, I quote Drehmann, E. Müller, Joachimsthal, Braun and Lange.

The corresponding figures for anatomical results compared with subspinal positions are in Drehmann's, 43:13; in E. Müller's, 28:12; in Joachimsthal's, 17:6; in Braun's, 57:60; in Lange's, 23:13.

Statistics of surgeons in various clinics show clearly that Lorenz' promise of 50 per cent. anatomical cures is not too optimistic, and that the bloodless reposition deserves the first place among all methods which may be considered in the treatment of congenital dislocation of the hip.

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SPINAL HEMORRHAGE; SOME OF ITS GENERAL PHASES.[1]

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AN understanding of the whole subject of spinal hemorrhage, to be satisfactory, should be based on a knowledge of the anatomy and mechanics of the local circulation. On the structural side the subject is well advanced, but of the dynamics of the intraspinal circulation we have little information beyond that afforded by the anatomical arrangements. The facts regarding even the encranial circulation are not entirely clear, though more than a hundred years have passed since Monro's writing.

The connected cranial and spinal cavities may have been supposed to be under parallel conditions. The circulation within the vertebral canal, however, has certain peculiarities. As the cord is such an elongated structure, the myelic space so much smaller than the encephalic, as the cord is under such varying and elastic local surroundings, subject to frequent flexion and with a different relation to gravity, as the spinal subarachnoid in postnatal life is only a non-absorbing diverticulum for the cerebrospinal fluid, these and other circumstances place the dynamic problems of the local circulation beyond any expectation of simple solution. In fact, from a physiological standpoint, this matter has received little independent consideration. Moreover, in the case of the cord, the so-called irritative phenomena are of a different character and more constant and dominant than in brain-lesions. In neither case are we well informed as to the sensory and vasomotor supply of the organ itself, a lack that is more serious in the study of the myelon than in that of the brain.

It is more scientific to recognize these defects in our equipment at the start, and then proceed.

Etiology.—As to their causation, the various forms of spinal hemorrhage may be put into three categories: (1) The traumatic, far the most frequent, and hence of most practical importance; (2) the secondary, starting from softening inflammation tumors, and the like; (3) the spontaneous, of chief theoretical interest. It

[1] Presented before the New York County Medical Society, February 27, 1905.

has been much disputed whether this form ever occurs, although at present the view that there are such cases is widely accepted. The interest in cases of this last class lies not so much in their obscurity, as in the fact that for the study of symptoms uncomplicated cases are necessary. Hence special shock, fractures, displacements and the like make the interpretation of this phase in traumatic cases extremely difficult.

All forms occur more frequently in the cervical, more particularly the lower cervical, region of the spinal cavity. This may to a slight extent be due to its proximity to the larger supply vessels. The greater size of the cord here may also play a minor rôle. But the fact noted is without doubt chiefly owing to the greater mobility and vulnerability of this part of the column. On the other hand, the dragging up and down of the lower cord might be expected to have some effect or modify the type there.

Classification and Terminology.—To pile up more cases of this kind in an indiscriminate manner can serve little purpose. One of the main obstacles met with in writing this paper has been the absence of any satisfactory and systematic classification of these cases. Boscredon made a partial attempt, but not to much practical purpose; only on that foundation has a comparative study much value. There are at least three anatomically distinct forms of spinal hemorrhage, viz., (1) epidural; (2) submeningeal; (3) myelic. These can be tabulated so as to admit of an indefinite further division of forms, as follows:

Spinal Hemorrhage	I. Epidural:	Infantile.
		Adult.
	II. Submeningeal:	Subdural.
		Subarachnoidal.
		Subpial.
	III. Myelic:	Central.
		Punctate.
		Focal.
	IV. Mixed and Complicated:	Secondary.
		Hematomyelitis.

A considerable terminology has been devised by one and another with reference to these cases. But the terms just given, while perfectly intelligible in themselves, are also believed to be free from possible misinterpretation.

Hematorrhachis, hemorrhachis, myelorrhagia, meningorrhea, hemorrhage into the vertebral canal or spine, are not sufficient without further limitation. Meningeal or even intrameningeal is also an unsatisfactory term; certainly the epidural form should no longer be included with the meningeals. Hematomyelitis is admissible if we really mean a hemorrhagic myelitis; but if that term is retained, then it is confusing to have also a hematomyelia (in the sense of simply a hemorrhage into the cord); if, instead, we say myelic hemorrhage, misunderstanding seems impossible.

Terms like spinal apoplexy, meningeal versus myelogenic, or intrameningeal may have a proper use when applied intentionally in a general sense. The hemato-myelopore of Van Gieson refers to a later formation.

1. *The Epidural Space and Vessels.*—The vessels here consist principally of veins, though both arteries and veins for the cord traverse the space with the spinal nerves. The epidural veins constitute a considerable plexus lining the inner surface of the vertebræ and imbedded in scant fat and connective tissue, the whole filling up the space between the free spinal dura and the lining periosteum of the bones. In a way they correspond to the dural sinuses about the brain, although not as exclusively for conveying blood from the organ beneath. In the common animals I have always found an ample layer of fat all around the myelon, carrying these vessels and serving more completely to cushion the cord. But in man there appears to be less of this protection. The cord lies anteriorly close to the ligaments and bodies of the vertebræ, separated only by some areolar tissue. Posteriorly, however, even in the human, there is more space; a thin layer of fat and loose tissue fills it up, and here the veins course irregularly, though connecting freely among themselves and with outside veins. The only original drawing of these appears to be that in the old atlas of Breschet (Paris, 1829). Some of these veins extend in front sufficiently to connect with vessels in the bodies of the vertebræ; to attempt to inject them through the vein of the body of a verebra is, however, a slow process, the intervertebral foramina appearing to be their most natural channel of exit.[1] Anterior and posterior and connecting plexuses of veins have also been described. At any rate, the epidural venous plexus is the source of hemorrhage in this locality.

From the arrangement of this space and its vessels, it follows that when free blood is found here it is naturally collected more or less behind the cord and its dura. Under such circumstances it appears to exert a uniform pressure on the whole myelon, and not, as might be imagined, especially on the posterior columns. Nor does fluid here always spread out as freely up and down as might be presumed.

Effusion of blood into this space may be of traumatic or, less often, of spontaneous origin. Manley[2] figured it as the chief seat of traumatic intraspinal hemorrhage. I have seen such a case where a thin layer of coagulum extended posteriorly along the cervical and a considerable part of the dorsal region, giving rise *intra vitam* to symptoms with a peculiar variation.

This epidural form has been found to be especially common in the new-born. Abercrombie recorded a case (p. 374). Matuszinski[3] found

1 W. Braune, "Ueber die Intercostalvenen des menschlichen Körpers." Bericht d. k. sächsischen Gesellschaft der Wissenschaft. Math.-physc. Classe, 1883, Bd. 35, pp. 76-84.
2 Journal of Nervous and Mental Disease, 1893, 484.
3 Gaz. med., 1837.

it in 16 of 25 autopsies in tetanus neonatorum. Thore[1] added another. Schäffer's series may also be mentioned. Protracted and difficult labors, and especially tetanus, are the recognized factors here, and with the spinal effusion is often associated "extensive hemorrhage within the skull."[2]

That tetanus may bring on this form of extravasation in later years than infancy is shown by cases XVII and XVIII of Hayem's series. Both followed crushing of fingers, one in a boy of twelve years, the other a child of eleven years, in each the effusion extending the whole length of the rachidian canal between dura and bones.

Aside from the infantile and tetanic forms, it has been possible to gather a number of cases of the epidural type, with no complicating injuries, and from these some information can be gleaned.

1. Howship, "Obs. in Surg. and Morbid Anat.," 1816, 115. Boy of twelve years. Jerked violently backward by a lasso around his neck. "For some months he felt nothing in particular," although he was lethargic. Pain and stiffness in the back part of the neck nine months later. Became paraplegic, and upper extremities involved. Difficulty in urination. Lethargy of bowels. Pain in small of back so severe as to make him cry out. Respiratory interference. Death in about a month. Cranial contents healthy. "A large quantity of extravasated blood was found in the cellular texture between the bones and the theca vertebralis" of the cervical region. The spinous processes of the four superior dorsal vertebræ were successively separated, by which operation the whole extent of the mischief was brought into view. Between the atlas and dentata the blood had made its way out between the bones backward, forming a small coagulum outside. Trouble mostly cervical. The vessels upon the posterior surface of the spinal marrow had suffered rupture. Condition of meninges and cord not stated.

2. Laennec, *Revue médicale*, 1825, T. 2, p. 359 (v. Boscredon). Man (age not stated). Signs of aneurism. Sudden attack of incomplete paralysis. He died in some hours. No mention of pain in connection with the rupture. Small clot at the level of the body of the eighth dorsal vertebra, between it and the dura. Also rupture into left pleural cavity.

3. Bigot, *Thésé de Paris*, 1845, p. 13 (v. Boscredon). Man of seventy-nine years. Difficulty of movements. Involuntary discharge of bladder and bowels. Contraction of lower extremities. Head inclined to left shoulder. No pain. No fever. Duration a year. From the second to the sixth cervical vertebra, between the dura and the bony canal, a yellowish unorganized focus with a black clot of blood in its upper part opposite the axis, the whole having the appearance of an apoplectic focus.

4. Boscredon, *Thésé de Paris*, 1855. Girl of fifteen years. Trouble began with nausea, pain in abdomen and constipation. Difficulty of speech. Later repeated convulsions. Involuntary discharge of bowels and bladder. Opisthotonos. Dorsal and lumbar pain. The general sensations continued intact as long as they could be followed (up to three days of death). Duration, fourteen days. At the autopsy peritonitis and multiple perforations were found. Also blood the whole length of the spine, external to the dura, between it and the vertebræ. Cord with its membranes otherwise normal, as also the brain.

5. R. Jackson, *Lancet*, 1869, II, 5. A vigorous young woman of fourteen years. Two days slight signs. Weak feelings, "but free from all pain." Arms largely paralyzed. No anesthesia. Respiratory weakness. Sir W. Jenner diagnosed, with perfect accuracy, a clot in the cervical portion of the spinal cord. Death in about six days after the first premonition, without pain, without loss of consciousness or sensation, but from respiratory failure. A softened spot and ill-defined clot in the cerebellum. The whole cervical portion of the spine, but particularly anteriorly and to the left side, was imbedded in an oblong clot of dark venous blood outside the membranes. The whole length of the cervical portion of the canal and dura mater were deeply tinged by the color of the clot. The cervical nerves all passed through this effused blood, the intervertebral canals on both sides being filled with it. As soon as the seventh cervical vertebra was reached the clot ceased, and the cord and canal assumed their normal condition and color. There was also a good deal of semi-clotted blood about the pons, and the nerves arising from it. Venous blood, he says. The only explanation is, that the effusion took place very gradually, had room to extend itself, and coagulated slowly and imperfectly.

6. Lutz, *St. Louis Medical and Surgical Journal*, 1885, Vol. 48, p. 235. Man of forty-seven years. Fall. Paralysis of all four extremities. Sensation preserved. Bladder and bowels under control. "The only symptom aside from the paralysis of which the patient complained was sleeplessness." Partial motion reappeared in the lower extremities. Death in about a month (?). No vertebral dislocation and no fracture. "In the spinal cord itself there

[1] Arch. gen., 1845.

[2] That this is not the only form seen in the infant, however, is shown by the case of d'Herbécourt (Bull. et mem. Soc. Obst. et Gynéc., 1898), where the child lived twenty-five minutes, and a small bilateral hemorrhage was found at the base of the anterior horns in the cervical region. And Schultze has called attention to the effect of prolonged labors and his system of resuscitation, in causing central cord-hemorrhage in the cervical region. Brevor's case of hemorrhage into the cord at birth (Brain, 1902, 85) was due to a dislocation of the column between the third and fourth dorsal vertebræ. Dr. H. R. Spencer's investigations on "Visceral Hemorrhages in Still-born Children" (Trans. Obst. Soc. London, 1891, 2, XXXIII, 270) showed that hemorrhage had occurred in 30 of the 44 cases in which the spinal cord was examined; outside the theca in 21, between dura and arachnoid in 2, in the arachnoid in 6, beneath the pia in 3, into the substance in 4, into Goll's column in 1, and into the whole thickness of the cord in only 1; "Spinal hemorrhage is greatly favored by the presentation of the lower extremity."

was no hemorrhage, but between the spinal cord and the bony walls there were two distinct hemorrhages. The first extended from the last cervical to the fourth dorsal vertebra, and the second from the last dorsal vertebra to the *cauda equina;* both clots were situated posteriorly. The inferior hemorrhage was more extensive than the upper one, and it pressed so much upon the cord itself as to produce a very appreciable softening of the entire cord, besides flattening it anteroposteriorly."

7. P. Bailey, *N. Y. Pathological Soc.*, 1894. Man of fifty-nine years. Three months before, he had become overheated, and had been in the hospital for five hours. On leaving the hospital he had complained of some pain about his chest. Now suffering from paraplegia, which had occurred very suddenly and without apparent cause. Loss of knee-jerks, incontinence of urine and feces, and anesthesia below the midthoracic zone. Death in a few days. An aneurism of the aortic arch was found, eroding adjacent vertebræ. On opening the spinal cord by the posterior method, a firm blood-clot was found embedded in the dural fat. It was situated on the posterior surface of the dura at a point corresponding to the third, fourth, and fifth dorsal segments, and was distinctly circumscribed. Underneath this clot, at the fourth dorsal segment of the cord, was an area of necrosis. The aneurism must have ruptured some time before death.

8. W. Bain, *British Medical Journal*, 1897, II, 455. Servant girl of eighteen years. Constipation. After a bowel movement following some pills, and in full consciousness, she developed a sensation of numbness all over, difficulty in walking. She soon had labored breathing, weak voice, pain in the back of the neck, paralysis of the left arm and right leg, and paresis of the right arm and left leg. Knee-jerks gone. Sensation impaired. Pupils normal. Pulse 52. Face pale. Some anemia awhile before. Then a watery discharge from the bowels, collapse, exitus. No traumatism, and no sign of it found. "A clot between the dura mater and the spinal canal," beneath the third cervical vertebra. It was a medium-sized clot, and took up the length of the second and third vertebræ, at the back and more to the right side.

9. Hopkins (of Denver), Extradural Spinal Meningeal Hemorrhage, *New York Medical Journal*, 1899, II, p. 296. Man, age not given, a coal shoveler, was suddenly seized by a "peculiar sensation throughout body, not painful. Paraplegia in about twenty minutes. Then complained of sharp, excruciating pains in the lower portion of the back, extending around the abdomen and down the thighs. Sensation lost in lower portion of the trunk and legs, but this and motion later returned. Girdle sensation. Incontinence of urine and feces. Convulsion and death on the fourth day. On removing the spinous processes, the canal external to the dura was found to be filled with liquid blood and a few small clots. The latter were found in the lumbar region. The hemorrhage occurred primarily in the lumbar region of the spinal canal, as was demonstrated to be the case at the post-mortem.

10. A. Cochez, "Hémorrhagie meningée spinale en dehors de la dure-meré," *Arch. d. Neurolog.*, 1902, XIII, 42. Patient was a man of forty-five years, heavy drinker and former soldier. In consequence of being thrown to the ground and of numerous blows about the body, he developed cramps in the calves, tremor, amnesia, blunted sensation, especially in the lower extremities, and great mental depression. Patellar reflexes exaggerated. Atrophy and imperfect action, rather than true paralysis of lower extremities. Micturition and defecation preserved. He retrograded until his general condition became paretic. On the seventh day in the hospital he suddenly gave out. Complete paraplegia and anesthesia of lower extremities. Incontinence. Death thirteen days later. At the autopsy an extensive hemorrhage was found in the dorsal and lumbar portions of the spinal column, outside of the dura. To its causation doubtless a chronic Bright's contributed, besides trauma and chronic alcoholism. Brain and cord normal, except slight subarachnoid edema.

While this collection of ten cases may not suffice to warrant very sweeping conclusions, it indicates a correction of current teaching on important points.

It has always been customary to include this form under the meningeal class. And it is common teaching of the authorities that meningeal hemorrhage is the more painful.[1] Comparison shows, however, that the epidural cases exhibit the symptom of pain far less often than either the submeningeal or the myelic.

Of the ten cases, one (4) is indefinite and so complicated with peritonitis as to be unavailable. Of the remaining nine, though two were due to rupture of aneurism, and hence less certain, there appears to have been a distinct complaint of pain at the onset or subsequently in only three. On the other hand, in the 20 myelics tabled below, pain was present in all except one too demented for determination and one occurring in a typhoid.

Nor was marked pain a beginning symptom in either of the epidural cases, as so frequently in the deeper forms. Evidently sensory fibers are scantily supplied to this space, and pain comes on, if at all, only after inflammatory or other involvement of the membranes.

We also find in these cases far less tendency to impairment or loss of sensation than in the myelic form. There was anesthesia below the level of injury in one, and sensation dulled or only temporarily involved in three. In some of the remaining six it is especially stated that sensation was unaffected. Hence it is fair to conclude that

1 The conclusion of P. R. Bolton (Ann. of Surg., 1899, II, 176), that "extradural hemorrhage does not give rise to cord lesions or symptoms," was based on traumatic cases, and certainly does not apply here.

in a half or more of these cases no impairment of sensation occurs, and that complete loss is unusual.

If for comparison we turn to the twenty cases of the myelic type, it appears that one was too stupid to be accountable, and one terminated suddenly. Of the remaining 18, *all* showed sensory loss, usually marked. Consequently some and often complete anesthesia is found in all myelics, as compared to only a half or less of the epidurals.

The explanation of this difference is simple. We know that pressure interferes with the transmission of motor impulses much sooner than with sensory, and this applies in the central nervous system as well as in the peripheral. Naturally a clot outside the dura will not tear or press upon the tracts as though in the cord itself. In any collection of cases sufficiently severe to check motion, there would inevitably be a few forcible enough to involve sensation somewhat.

Doubtless careful observation at the onset would show even then an earlier motor than sensory involvement.

The occurrence of girdle sensation is also to be mentioned. It is noted in but one of these ten, although observed in 5 or more of the 20 myelics.

Another available distinction on the sensory side is furnished at times by the dissociated loss of sensation. This has not been oberved in the epidurals (nor is there any ground to suppose that it will be), but in even the primary myelics it has occasionally been noted. The presence of this in any given case can be taken as prima facie evidence that it belongs to the myelic form. These various points show that the epidural class should be distinguished for practical purposes from all other (intrameningeal) forms. Any criticism of these comparisons because they are in part based on old cases does not apply, as old and new have been utilized alike in each series.

The other symptoms it is not the present purpose to consider specifically.

In location there were four cervical, two dorsal, two dorsal and lumbar, one lumbar, and one general. The males are seven, females three. In age there are two widely separated groups, one between ten and twenty years, and all the others over forty-five.

The anatomical arrangement, above described, with the consequent tendency in man for the bleeding to start and the blood to collect in the posterior and most accessible portion of the vertebral canal, affords an opportunity for surgical relief. If clinical aids for the differentiation of this extradural form can be established we have a positive and hopeful surgical indication. Jenner made the correct diagnosis of a cervical hemorrhage in Jackson's case, and with the help of the signs just pointed out the warrant for interference may occasionally be clear.

II. *Submeningeal Hemorrhage (Subdural, Subarachnoidal, Subpial).*—In cases of brain-hemorrhage rupturing into the membranes, blood or tinged fluid is often found in the spinal extension of the spaces. But there is no evidence to show that this gives rise to symptoms.

Except as a complication the subdural spinal form is unimportant. It must almost invariably be consequent to the breaking through of what was primarily an extravasation into adjacent parts. Somewhat the same holds for the subarachnoidal form, although here there may have occurred a direct vascular leakage into the pia-arachnoidal meshes. The subpial form, however, appears at times independently, and gives rise to very positive manifestations. It is probably impossible as yet to find pure cases of these types [1] in sufficient number to permit a study of the independent symptomatology of either. Because they are so largely complicated with cord troubles, or for whatever reason, these meningeal forms resemble very closely the myelic cases. Frequently in these the free blood is found so widely diffused as to leave their regional origin in doubt. In the dispute (Gowers vs. Osler) whether this or the epidural form is the more common, all depends on what cases are counted on either side.

III. *Myelic Hemorrhage.*—This of course arises from the cord vessels proper, including those of the pia. The best drawings of these are to be found in the articles of Adamkiewicz [2] and more particularly in the monograph of Kadji, "Ueber die Blutgefässe des menschlichen Rückenmarkes," Lemberg, 1889.

A far smaller effusion here than in the brain suffices to produce pressure effects, and even a transverse destruction. As is the case in the brain, we here meet with the added effects of reaction in the neighborhood. Some break through into the central canal or under the pia. Coma, or involvement of the brain or the cranial nerves, does not result.

Cases of hemorrhage into the cord itself may be conveniently divided into three groups.

1. *The Central or Tubular Form.*—Here the effusion starts in the central gray and infiltrates longitudinally, following lines of least resistance. Cases due to violence tend so often to take on the elongated shape, that traumatic is considered synonymous with central. In proportion to volume the cord appears to be quite as frequently the seat of traumatic hemorrhage as is the brain. In this tubular form the paralysis more often extends from below upward, and may increase for some days. Its starting point depends chiefly on the part that bears the brunt of the injury. The cervical region is most exposed, but the lumbar enlargement is a frequent site, and no part is proof. The way in which the violence produces the bleeding doubtless varies much. Fractures and dislocations may directly tear the vessel across, or a weak point may give way under strain. In some it is claimed to develop in con-

1 For cases of these and mixed forms, see (1) Claubry, 1808; (2) Chevalier, 1812; (3) Stroud (Bright's Repts., II), 1828; (4) Fallot, 1830; (5) Pfeufer (Obs. XI), 184.; (6) Berkeley, 1890; (7) Lanford, 1894; (8) Riggs, 1896; (9) Janeway (mentioned by Starr, 1904), etc.

2 Sitzb. d. k. Akad. d. Wiss., 1881 and 1882.

sequence of a powerful though transitory sharp forward bending of the cervical spine.

This form has been specially studied of recent years.

L. Minor's observations, seconded by Goldscheider and Flatau's experiments on the paths by which this hemorrhage spreads, may be mentioned. Minor applied the term central hematomyelia to cases showing a combination of muscular atrophy and paresis with the syringomyelic type of sensory impairment. The manifestations may verge on those of syringomyelia, but whether the latter condition results as a sequel is still a question. In a non-traumatic case that I have followed for five years there has been continual improvement, though at one time it illustrated Bruns' statement that when "situated in the cervical region of the cord, a more or less extensive atrophic paralysis of the arms remains." There are, however, cases of cavity formation in the cord, following accident, with a gradual increase of symptoms, and that correspond so well clinically and anatomically that but for the history there is little question the diagnosis would read syringomelia.

2. *The Punctate Multiple and Often Capillary Form.*—This is frequently associated with some inflammatory process (hemorrhage myelitis). Cases have, however, been observed where these minute extravasations extended widely along the gray of the cord. My predecessor, the late Dr. J. C. Shaw, claimed that this was at times an independent affection and admitted of diagnosis as such. A case of the kind was observed at the King's County Hospital some years ago. For present purposes this may be considered with the third type.

3. *The Single or Focal Form.*—This is the type that has been supposed to correspond to the ordinary form of cerebral hemorrhage. It includes most cases of spinal apoplexy due to hemorrhage. Even here the output is rarely as large as a hazelnut or an acorn (Leyden, Birch-Hirschfeld), but may assume an elongated shape and thus approach the tubular.

As the nature of many cases of this class, especially the question of their primary or secondary origin, has been the subject of much discussion, I have taken the trouble to review a number of the published descriptions. Some phases of the subject call for mention. For that matter cerebral hemorrhage starts not so very rarely in a previously softened spot.

Levier in 1864 collected 17 cases of spinal hemorrhage; Hayem in 1872 brought the number up to 34; and Berkley[1] in 1890 raised it to 45. It will be found on comparison, however, that these include nondescript and unrelated cases to an extent that detracts from the value of their statistics and conclusions. If we include in this rubric only myelics free from traumatism, epilepsy or local tumor, and exclude also those with brain complications or occurring at birth or unverified by autopsy, our list even when brought to date is materially reduced. This leaves only hemorrhage with or without softening. A sufficient number for illustration and comparison have been tabulated, not all the known cases, but the first twenty old and new that came to hand.

It is the usual comment that such cases are very rare.

This cannot be due, as thought by some, to the non-occurrence of aneurismal dilatation of cord-vessels. Hoch[1] cites a number of such descriptions, and in addition may be noted the observations of Liouville,[2] Brasch,[3] and Guizzetti and Cordero.[4] It is besides now recognized that previous alterations of this kind in the vessels play less of a rôle in brain hemorrhage than was once supposed.

It may not be amiss, however, to consider whether spinal hemorrhage is certainly so much less frequent than cerebral. On the basis of the proportionate size of the organs (the cord being approximately one-fiftieth as large as the brain), we need not expect myelic hemorrhage to be other than a great rarity. Even in the brain it is only in the limited areas supplied by the comparatively large terminal arteries that hemorrhage is often observed. The remaining and major part of the encephalon is relatively immune.

Now, although the ultimate supply arteries for the myelon are all endarteries, we have here (and more perhaps than elsewhere in the body) an indirect blood supply. None of the myelarteries appear as immediate continuations of the systemic arteries, but rather are derived from an arterial network (pool) in the spinal pia: the efferents unite in a chain, and from this the parenchymatous vessels pass off. Such a plan furnishes a more perfect protection than does the circle of Willis in the brain.

Hence volume for volume it is still possible that the cord is as subject to spontaneous hemorrhage as are the relatively free portions of the encephalon. This possibility is worth suggesting as a counterpart to the widely raised query whether primary cord hemorrhage ever occurs.

It is, however, surprising to note how many of the cord cases start before the usual period of life for cerebral hemorrhage. In the 20 here scheduled there were only 7 (or about a third) in persons over forty-five years old. This large number of early occurrences is the more striking, as these patients were all over ten years of age, and yet, according to mortality statistics, three-quarters of those living at ten years do not die until after forty-five. In any individual then the liability diminishes toward the decline of life.

From this and other features it becomes evident that these hemorrhages must be due, largely at least, to other causes than are operative in the brain. A number of times the anomalies and congestions of the sexual sphere are noted as etio-

1 Brain, 1890, January.

1 Johns Hopkins Hosp. Rpts., 1891-2, II, 351.
2 Soc. de Biol., 1872.
3 Berl. kin. Woch., 1900.
4 Riforma med., 1903.

Author.	Publication.	Age.	Sex.	Pain.	Sensation.	Motion.	Blad. and Rect.	Lesion and Site.	Duration.	Complication.
1. Hutin	Nouv. Biblioth. Med., 1828, I, p. 170.	70	M.			Legs weak		One clot in lower cervical region; and one at fourth dorsal		Limited intellect
2. Cruveilhier	Anat. Path. 3 liv., Pl. vi, 1829-35	36	M.	Sharp in neck and extremities.	Anesthesia and analgesia	Lost in trunk and extremities	Both completely paralyzed	Old cervical clot New effusion through whole length of spinal gray	40 days	One attack 4 or 5 years before
3. Curling	Lond. Path. Soc., 1849 p. 28	44	M.	Pain at wrists	Lost (Girdle sensation?)	Paraplegia	Urine scanty	Clots between origin of second and third dorsal nerves, with infiltration up and down	4 days	Priapism Gastric pains
4. Ogle	Lon. Path. Soc., 1853.	39	M.	Present.	Impaired in legs	Increasing weakness in legs	Trouble in urinating	Extravasation of blood in post. white and gray at tenth dorsal vertebra	3 weeks	Hemorrhage in oblongata
5. Levier	Abst. in Med. Ti. and Gazet. 1865 (1864)	18	F.	Violent in lumbo-sacral region	Lost in lower extremities	Paraplegia	Retention of urine	Hemorrhage and surrounding softening tenth vertebra down	24 days	Decubitus Attack came instead of menses
6. F. Duriau	Union Med., 1859, No. XX, pp. 307, 340, 373 and 389.	26	M.	Acute in dorso-lumbar region.	Analgesia Temperature and contact retained Girdle sensation	Completely lost in legs	Retention of urine	Clot at level of eleventh dorsal nerves; softening down to end of cord	18 days	Edema of ankles Decubitus
7. A. Gorsse	Thésé. Strassb. (Schützenberger's clinic) 1870	68	M.	In legs and lumbar region	Anesthesia to umbilicus	Paraplegia	Retention of urine	Hemorrhage in gray of last decimeter of lumbar cord No softening of any account	About 37 days	Decubitus Vigorous and intelligent man
8. Bourneville	Gaz. Med., No. 40, 1872	58	F.	In back and side of neck	Impaired on right side	Paralysis of left arm	Involuntary movements of both	Oval hemorrhage in medi lateral cervical cord from first to seventh pair	1 week	Dysphagea Dyspnea Uncertainty of ideas Swelling over left midcervical vertebræ
9. Liouville	(Obs. LXVIII of Hayem) V. Lefebre, p. 18, 1872	25	M.	Extensive and severe	Anesthesia and retardation in legs Girdle sensation	Paraplegia	Retention of urine Weakness of both	Hemorrhagic focus through whole dorsal and most of lumbar cord Old arachnitis; softening	2 months	One attack 4 years before. Died of septicemia and tuberculous bronchitis
10. Eichhorst	Charite Annalen, 1874, I, p. 195	28	F.	Light pain in left arm. Sticking, pricking feeling from umbilicus to toes	Lost Girdle sensation	Palsy of legs and arms	Retention of urine Paralysis of bowels	Blood points and red-softening in dorsal and cervical cord	5 days	Began on last day of a menstruation
11. Goldammer	Virchow's Arch., 1876, LXVI, p. 1.	15 ⅝	F.	Severe in arms and bet. scapulæ	Complete anesthesia to breasts Girdle sensation	Paraplegia	Paralysis of bladder and torpid bowel	Spot of softening at level of second dorsal nerves	1 year	Had not menstrusted
12. C. Lefevre	Paris Thesis, 1877	63	M.	In neck and shoulder	Analgesia Relative anesthesia Heat and cold sense diminished No girdle sensation	Quadriplegia	Retention of urine and feces	Hemorrhage between third and fourth cervical pairs involving ant. and post. horns	12 days	Decubitus Vigorous and intilligent

Author.	Publication.	Age.	Sex.	Pain.	Sensation.	Motion.	Blad. and Rect.	Lesion and Site.	Duration.	Complication.
13. Page	Lancet, 1880, I, p. 445	10	F.	In neck and left arm	Not mentioned	Stiffness in neck and shoulder		Clot and infiltration with softening in lower cervical region	4 days	Sudden death from paralysis of respiration after defecation
14. Woods (Lyster)	Lancet, 1880, II, p. 694	16	F.	Neuralgic along fibular nerve	Anesthesia of left leg	Paralysis of left leg	Paralysis of rectum and incontinence of urine	Clot 1 inch long lying lengthwise opposite ninth dorsal vertebra and cord "broken up"	3½ months	Edema decubitus and contracture
15. Wilkens	Montreal Gen. Hosp. Reports, 1880, I, p. 111	40	M.	Slight in shoulders and legs	Lost below nipple line	Impaired in arms; lost in legs	Retention of urine	Hemorrhage between fifth and sixth cervical nerves. Clot from second cervical to fourth dorsal	10 days	A drinker
16. Sinclair	Lancet, 1885, II, p. 1043	24	M.	Severe in legs	Lost from waist down	Paraplegia from waist down	Vesical incontinence	Hemorrhage and disorganization in gray from sixth to eighth dorsal vertebra	6 days	Ankle clonus Intense anemia
17. J. J. Kindred	MEDICAL NEWS, 1892, Feb. 13	59	M.	Severe simulating angina pectoris and also dorsal.	Numbness up to level of lesion	Paralysis of legs	Both paralized	Clot in gray at level of fourth dorsal segment, with softening	6½ hours	Priapism Embarrassed respiration
18. A. Schiff	Deut. Arch. f. klin. Med., 1900, vol. 67, p. 175	19	M.	None	Absolute anesthesia in the 4 extremities	Quadriplegia	Both paralyzed	Hemorrhage with focus at fifth and sixth cervical, running up to second segment Another from fifth to eighth dorsal	18 hours	Occurred on ninth day of typhoid Lumbar puncture showed cerebrospinal fluid normal
19. Collins and Zabriskie	Med. Record, 1904, II, 361	51	M.	Sharp in legs in early part	Diminished in legs	Inability to stand and progressive paraplegia	Incontinence of both bowels and bladder	Arteriosclerosis and hemorrhage at ninth dorsal segment, in left ant. and right post. horns	A few months	Decubitus General arteriosclerosis. Death from heart weakness
20. Browning and Tilney	MEDICAL NEWS, 1905	59¾	M.		Nearly abolished in legs	Paraplegia	Retention of urine	Microscopic hemorrhages in lumbar segments Hemorrhagic fluid outside dura	12 days	Operation Changes in cerebrospinal fluid

logical factors. The special mobility of the cord, the fact that it is subject to bending, pulling and stretching[1] makes us wonder that its vessels are not oftener ruptured. In the common procedure of spinal puncture we can easily note that flexing the column forward increases the pressure of the fluid, and unbending relaxes it again. This change must, of course, be transmitted to the vessels. In these several ways the local circulation is put to varying tension and strain, the effects of which may be soon apparent or again cumulative and remote. We thus find an explanation for the greater frequency in the working years, and can conclude that myelic hemorrhage is not usually a result of the degenerations (or involutions), but of the activities of life. This is not synonymous with saying it is directly traumatic. It is a different process from brain hemorrhage, and consequently not properly comparable with it numerically or otherwise.

This interpretation also bears on the occurrence of multiple bleedings and adjacent softening, that have proven so confusing. The excess of males is readily explained on the same basis. This preponderance has been evident in every series, the ratio in the present one being 14 males to 6 females.

The somewhat greater frequency in the cervical region (these 20 show 9 cervical, 8 dorsal, 1 lumbo-dorsal, and but 1 lumbar) may, as pointed out above, be likewise attributed to the greater wear and tear in that part.

Although claimed by some that spinal apoplexy

1 Hegar, Wien. med. Blätter, 1884.

is always ushered in with sharp pain, and by others, on the contrary, that the form within the cord substance is not so apt to be painful, the figures already given show that neither statement is quite correct, but that pain always attends some stage of the myelic form. A number of cases in the literature (all, however, without autopsy), from their painless course, indicate otherwise; but the verified facts suggest that they were of a different character; that spinal apoplexy is not always the result of vascular rupture. Accurate determinations of the body temperature are more valuable in the differentiation of these forms than heretofore recognized, although Parkin [1] acknowledges it is raised in hemorrhagic myelitis.

Owing to inapposition of cord segment and vertebra, it is possible that a number of the earlier dorsal cases were really lumbar.

Prognosis in the Various Forms.—Where there is any complication, as inflammation, tumor fracture, or such unfavorable sequels as decubitus, cystitis, respiratory weakness, etc., the outlook is correspondingly affected.

The epidural space offers excellent chances for absorption, and a specially good prognosis has been claimed. Still, there appears to be no proof of this as yet. The submeningeal forms are so largely complications as to have little independent significance. When not too free or prolonged, such effusions may undergo a slow absorption. In fact, according to Bruns (Twentieth Century Practice), "Perfect recovery usually results in hematorrhachis." Of the myelic cases it is known that they are not apt to be rapidly fatal, except those above the origin of the phrenics, when asphyxiation promptly ends life. There is some evidence to show that the course of lymphatic absorption in the myelon is upward; consequently the disappearance of material from the lower levels of the cord must go on very slowly. That instances of the myelic form may fully recover, however, is shown by the well-known case of Cruveilhier [2]; here the paralysis passed away after three months, and at the autopsy, five years later, the cicatrization on one side of the cervical cord showed the old hemorrhagic focus. Inasmuch as non-fatal cases lack proof and are less likely to be described, it is impossible to calculate the prospect more exactly. Recognizing that there are favorable and unfavorable cases, each must be determined on its own manifestations.

Tuberculosis Congress Meets in Paris.—The International Tuberculosis Congress was opened in Paris, October 2, by President Loubet. Thirty-three countries were represented. The members of the congress, including the exhibitors at the exposition of appliances, etc., numbered five thousand. The hall was crowded, and there was a large number outside.

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[1] Guy's Hospital Report, 1892.
[2] Anat. Pathl., 3 liv.

VESICAL FISTULA.[1]

BY HERBERT H. PURINTON, M.D.,
OF LEWISTON, MAINE.

VESICAL fistula is of comparatively rare occurrence, but when it does occur, it gives rise to so much discomfort of body, and distress of mind, that it is worthy of the surgeon's skill, best thought and attention.

Leaving out operations which require an opening being made in the bladder, or some very rare accident, like a wound made by a pistol ball, vesical fistulæ are almost wholly confined to women.

A woman afflicted with a vesical fistula is shut out from all society and places of amusement, is confined to the house, and in some cases to her room. She loses health in consequence of loss of exercise, fresh air, bodily suffering, and mental distress.

Luiz de Mercado, a Spanish physician, Felix Plater and Severin Pineau, in the latter part of the sixteenth century and early part of the seventeenth, gave several clear descriptions of vesical fistula.

H. Van Roonhuysen, in 1663, was the first to propose closure of such fistulæ by suture. A. J. Joubert, of Paris, was the first operator systematically and successfully to take hold of this perplexing question.

In the simple cases he brought down the cervix of the uterus with forceps, pared the edges of the fistula, and accurately approximated them with interrupted sutures. When the fistula was so large as to prevent the approximation of its edges, he made lateral incisions, parallel with the edges of the fistula, to relieve the tension.

J. Marion Sims, in 1852, attained greater success than had before been acquired. He devised the duck-billed speculum, which exposed the fistula, with the patient lying in the semi-prone position. He denuded the margins of the fistula in a funnel form down to, but not through, the mucous membrane of the bladder, and approximated the edges of the wound accurately with silver wire.

Still many intractable cases remained, and in 1855 Simon attempted to close the vagina and make a common pouch for the urine, of the bladder and vagina. He cited eight indications for the operation as follows: First, an extensive loss of tissue, rendering it impossible to approximate the margins of the fistula. Second, inaccessible fistulæ. Third, destruction of the uterine cervix, bringing the peritoneum dangerously near the seat of operation. Fourth, severe hemorrhage into the bladder, after an operation. Fifth, incarceration of the cervix uteri in the bladder. Sixth, atresia of the vagina above the fistula. Seventh, atresia of the urethra with a fistula above and below it. Eighth, ureterovaginal and uretero-uterovaginal fistula.

Kelly claims that not one of these reasons

[1] Read before the Maine Medical Association, June 7, 1905.

holds good to-day, with the advanced methods we have of overcoming such conditions.

Usually vesicovaginal fistulæ are caused by injuries done to the parts during difficult labor, as a result of the pressure of the child's head in a narrow pelvis. Many have supposed that the use of obstetric forceps has been a great cause of this trouble, but Kelly believes that this is erroneous, and that in a great many cases it is caused by too late use of the forceps.

Too prolonged pressure of the head impedes the circulation, and a slough is formed in consequence, with a resulting fistula. Other causes are stem pessaries, syphilis, cancer of the cervix uteri, perforation by a pistol ball, as described by Emmet; hematoma of the vaginal vault from coitus (afterward followed by a slough) and wounds caused during vaginal hyterectomics.

The tendency of a fistula, uninterfered with, is toward closure, but many of them, and the most of them, do not entirely close.

Sometimes a hole is left, not larger than a pin. This is sufficient to cause as much trouble as a larger fistula, and needs an operation just as much.

The symptoms produced by a vesicovaginal fistula, which is the kind we oftenest see, are as follows: Soon after the confinement, which has caused the trouble, there is difficulty in urinating, with symptoms of inflammation of the bladder; febrile symptoms set in, followed in a week or ten days by the escape of a slough.

After this the patient notices that the urine dribbles away from the vulva and down over the perineum, instead of passing out through the urethra by the act of micturition. The parts become excoriated, and the hairs upon the vulva, and sometimes the edges of the fistula, become encrusted with urine salts. Upon examining the vagina with a speculum, the fistula, if of large size, may readily be seen.

When the patient lies upon the back, sometimes the urine does not escape from the vulva, but gushes forth immediately, when she assumes an upright position.

If the fistula is very small and situated well up to the neck of the bladder, the patient, when first assuming an upright position, may be able to urinate in the natural way.

The history of a difficult labor, followed by fever, cystitis, bloody urine, escape of a slough from the vagina, and the patient complaining later that she is constantly bathed with urine, as very frequently she has no control over her urine, will lead the surgeon to look for fistula.

If, on speculum examination of the vagina, the exact point at which the fistula is located cannot be determined, on account of its small size, a little milk or aniline-colored water may be injected through the urethra, into the bladder. At the point of the fistula, this will readily be seen oozing through into the vagina.

Sometimes the aperture into the bladder will be large enough for the introduction of the finger of the examiner, or may, at first visual inspection, be plainly seen, when, of course, the diagnosis is readily made.

When the physician first learns that a fistula exists, he should order the frequent use of mild boric or carbolic acid douches, and direct that they be kept up till the fistula heals spontaneously, or an operation is performed. Operation should not be delayed after contraction of the edges of the wound seems to have stopped, for no further hope of spontaneous closure should be entertained.

The old methods of retaining a catheter in the bladder for the purpose of keeping it empty, placing pledgets of cotton in the vagina to absorb the urine, or cauterizing the edges of the fistula with caustic or the Paquelin cautery, I believe to be a waste of time. I have tried some of these things a few times, but have always been disappointed.

Operation is the only scientific treatment, and holds out the best hope of recovery. The best time for operating is six or eight weeks after labor, when the parts are soft and yielding.

If the fistula, or any part of the vagina, presents raw granulating surfaces, they should be treated with nitrate of silver until they have healed. All encrusted salts should be removed, and if cicatrical bands of tissue have formed, which prevent the sides of the fistula from being brought together, they should be incised. If there is stenosis of the vaginal orifice, it may be divided with a knife, an incision being made down beside the rectum which will give sufficient room for the operator to work. This may be brought together again with sutures after the fistula has been repaired.

When about to operate upon one of these fistulæ, I prefer to have my patient in the lithotomy position. The parts are thoroughly sterilized, and it goes without saying that the hands of the operator, assistants and instruments are sterilized as well.

A Sims' speculum is then introduced and an assistant strongly retracts the posterior wall of the vagina and perineum. Two more assistants, one on each side, draw the sides of the vagina apart with retractors. The next step in the operation is to seize the cervix uteri with forceps, and draw it down strongly, thus bringing the fistula into better position for the radical operation.

Kelly advises seizing the wall of the vagina on each side with tenacula and holding it firmly, while the edges of the fistula are being pared. I prefer introducing into the bladder, through the urethra, a large staff, like a Hanks' uterine dilator, and elevating the outer end, thus pushing the bladder still farther into the vagina, and putting the vaginal wall on the stretch.

Here it is held steadily and firmly by an assistant, while a funnel-shaped denudation of the edges is being made, and sutures are being introduced. If the fistula should be very large,

tenaculum forceps may serve better to hold the edges of the fistula still.

I believe the funnel-shaped denudation of the edges of great importance, as a much larger surface for healing is exposed, and consequently a much better result likely to follow. The margins of the part to be denuded should be outlined with a knife before the beginning of the operation. A long pair of rat-toothed forceps, having about three fine teeth on each blade, should be used to grasp the tissue to be cut away, and a long, slender pair of sharp-pointed curved scissors used to pare the edges of the fistula. Care should be taken that the freshening of the surfaces to be brought together be thoroughly done, for, if a point be left where the scar tissue is not cut away, union will not take place.

Silkworm gut makes the best sutures, as it absorbs nothing, and does not lacerate the tissues, either when being introduced or removed. The sutures should be introduced with a small needle, about three sixteenths of an inch from the margin of the denuded surface, carried down to, but not through, the mucous membrane of the bladder, and should be about a quarter of an inch apart.

Great care should be exercised not to involve the ureters or urethra in the sutures, if the fistula is situated near these important organs. The direction of the line of sutures should be such as will bring the edges of the fistula together, with the least amount of strain. It is better not to tie until all the sutures have been introduced, having them held out of the way by an assistant, so as not to interfere with the movements of the operator.

One eminent writer on the subject recommends, when a vesicovaginal fistula and a rectovaginal fistula exists at the same time, repairing the rectovaginal fistula first, giving as a reason that the rectovaginal fistula may infect the vesicovaginal one and spoil the operation on the bladder, if both are done at the same time.

Without wishing to be presumptuous, I feel that it is better to operate upon both at the same time. The constant dribbling of the urine over the rectovaginal fistula is, in my opinion, more likely to infect *it* than the operating on both at the same time is likely to endanger the operation on the bladder.

A few years ago I had a patient who had had one operation before coming to me, but without success. On examination I found she had two vesicovaginal fistulæ, separated by an isthmus of tissue, each one being large enough to admit of the introduction of an instrument as large as a lead pencil. Besides these, she had a rectovaginal fistula fully half an inch long.

In this case I made one fistula of the two vesicovaginal fistulæ, cutting out the tissue that separated them, closed *it* and the rectovaginal fistula at the same time. The result was a complete success.

Another little detail of which I wish to speak, which I believe to be of some importance, is the dressing of the wound after it has been sutured. We all know how hard it is to keep wounds about the vagina and anus in an aseptic condition. To prevent sepsis following these operations, after I have tied the sutures, I thickly dust the wound over with iodoform and then seal the whole with collodion.

This will adhere to the wound and hermetically seal it long enough for nature to glue the edges together.

After this is dried, I place a pack of gauze in the vagina not too solidly, but a sufficient amount to make a support for the bladder during the straining of defecation, micturition, or coughing, thus taking off a part of the strain that is put upon the stitches. Some recommend that a retention catheter be placed in the bladder and kept there until union has been effected, but I prefer to have a soft rubber catheter, passed by a careful nurse every three hours, for the first eight or ten days, and after that at longer intervals.

The bowels should be kept quiet for five or six days, then moved with castor oil or sulphate of magnesia and an enema of warm soap suds.

The stitches should be left in place for two weeks, and great care should be exercised, while removing them, not to put any strain upon them.

After the stitches are removed, I again dust the wound and stitch-holes with iodoform, paint on another coat of collodion, and put in another pack of gauze. The collodion not only keeps out germs from the stitch-holes, but binds the parts together for a few days longer. After five or six days, when this has been removed, there is but slight evidence of any wound having existed, so far as scar tissue or stitch-holes are concerned.

I direct the patient during all this time to lie as quietly as possible, live on liquid diet, and after the stitches have been removed, keep the bowels in an easy condition, so as to avoid any straining at stool, which might tear apart the newly made union.

I had one case in which everything went along nicely for about two weeks, parts all dry both before and after the stitches were removed. Within a few days after the removal of the stitches she allowed her bowels to become very much constipated, and while straining to evacuate them, she burst the wound open, so that I had to take one or two more stitches. By this time she had learned the importance of keeping the bowels in an easy condition and had no further trouble.

Sometimes the fistula is so large that the edges cannot be approximated, and it is necessary to turn up a flap, dissected from the wall of the vagina, pare its edges accurately to fit the edges of the fistula, and suture it into place.

Another method is to dissect the bladder from the uterus, and bring it down with tenacula. The edges of the fistula are then sutured together, the bladder returned to its place, and the vaginal

vault sewn up. This procedure may also be practised in case of a uterovesicovaginal fistula.

In all these cases the essential points to be observed are cleanliness, clearly defined margins to the denuded surfaces, the accurate coaptation of the parts and subsequent proper care.

The value of not being discouraged, if by chance an operation does not succeed the first time, was illustrated by a case which fell into my hands some time ago. A vesicovaginal fistula of great size had followed a vaginal hysterectomy; it had been operated upon several times, resulting in a diminution of the size of the fistula, without obtaining a cure. I operated upon the patient, and for five days everything was all right. Unfortunately, the family was poor, and she was taken care of by her husband. Under the circumstances I feared for the result, and it justified my fears. I found, on visiting my patient one morning, that the wound was broken open. As near as I could find out, this result was due to passing a catheter several times, and at last leaving it in the bladder. The patient had quite a severe cystitis, and there was more or less pain each time the catheter was passed. The catheter used was metal, instead of soft rubber, as it should have been.

For this I blame myself, but I think the wound was opened by the catheter being passed in an unskilful manner, because the patient said she was hurt greatly during one of the attempts to draw her water.

She was much discouraged and would have nothing more done during a number of weeks. After a time, however, hearing of another case where I had been successful, she determined to try once more. This time I had her carried to the Sisters' Hospital in Lewiston, where I operated upon her, a complete cure being the result.

Instead of being a woman comparatively thin in flesh, shut out from all society, mortified every waking moment of her life, suffering much from cystitis and the excoriations of the vagina and surrounding parts, lacking tone and rich blood from loss of exercise, fresh air, and great discouragement, she is now enjoying the best of health, is in good flesh and able to enjoy any part of life which she was permitted to before she had the fistula.

Other forms of vesical fistula I have not touched upon, as they are very rare, and my time is too limited.

MEDICAL PROGRESS.

MEDICINE.

Sciatica and Its Treatment.—Whereas pain in the course of the sciatic nerve is common, WILLIAM M. LESZYNSKY (*Med. Rec.*, Sept. 9, 1905) is of the opinion that genuine sciatica is rare. Most of the cases assumed to be sciatic neuralgia are usually either a form of perineuritis or interstitial neuritis, and others are symptomatic of some extrinsic lesion. The commonest causes of sciatica are exposure to cold, overfatigue of the lower extremities, pressure and injuries. In some instances it is probably a local manifestation of a general toxemia, though it is very rarely observed as a result of lead or mercury poisoning. Sciatic pain noted in gonorrheal urethritis is evidently a referred pain, but interstitial nephritis and epididymitis may prevent a casual relation. Anemia, chlorosis, hysteria, and neurasthenia have much less influence in its production than in other forms of neuralgic pain. For simplicity sciatica may be classified into two groups: First, cases developing rapidly, and second, cases developing slowly. The first group is usually the result of exposure, and the second is often due to pressure. The diagnosis should be carefully arrived at, eliminating other possibilities such as perineuritis, degenerative neuritis, pressure, lumbago and acute rheumatism. No pains should be spared to uncover the real cause, in order that the treatment may be directed accordingly. The patient must be kept at rest in bed, with or without fixation of the extremity, depending upon indication. Then a hot, wet pack is applied to the limb. The ice-bag, though not always serviceable, is of value in some cases. The lower bowel is cleared by enema, following which a hot saline irrigation, temperature 110° F., is given for thirty or forty minutes. Morphine or codeine may be necessary to quiet the pain. It is important to administer calomel or castor oil, since this both keeps the lower bowel free from accumulation and eliminates the toxic intestinal products. Opium should not be withheld, as the distress often produces a tendency toward despondency. There exists a diversity of opinion relative to the use of massage in acute cases. In many instances it has proved a valuable adjunct, but its efficacy depends largely upon the skill of the masseuse and the sensitiveness of the patient. As soon as practicable more active hydrotherapy should be instituted. In relieving pain the Paquelin cautery is often efficacious. By the end of the first week galvanism may be resorted to. This, however, is of more value in the mild, subacute or chronic cases. Mild cases may be treated by hot fomentations, massage, rectal irrigation and by salipyrin, aspirin or phenacetin. Subacute cases require a modified form of rest cure, massage with passive movements and systematic exercise, and hydrotherapy. In some chronic cases, static electricity in the form of sparks or the static induced current, or the foradic wire brush, have proved more or less of value as supplementary treatment. Blistering over the course of the nerve is also useful. Operative procedures are usually of no avail, but in long-standing cases an exploratory operation with incision of the nerve trunk and the freeing of any existing adhesions is advisable.

Kernig's Sign and Its Pathogenesis.—On the ground of anatomic physiological data, G. B. HASSIN (*Med. Rec.*, Sept. 9, 1905) offers an explanation of the pathogenesis of Kernig's sign. Flexion of the thigh upon the trunk and extension of the leg upon the thigh at the same time places the sciatic nerve upon the stretch, which is the first point to be considered. This in the healthy individual produces no pathological condition, unless the sciatic nerve be greatly stretched. However, in morbid processes involving the nerve itself or the nerve roots, the stretching produces a corresponding reaction; in the posterior roots, by pain, and in the anterior roots by contraction, which in the case of the sciatic

nerve involves the flexors of the leg. This sign is pathognomonic of meningeal inflammation.

Poisoning by Fungi.—The really poisonous species of fungi are comparatively rare. Text-books leave the impression that the active principle of all poisonous mushrooms is the alkaloid muscarin, the antidote for which is atropine. That certain fungi do contain muscarin is true, but these can hardly be mistaken for the common mushroom, even by the most careless. CHARLES B. PLOWRIGHT contends (*Brit. Med. Jour.*, Sept. 9, 1905) that the species which causes so many deaths owes its lethal power not to an alkaloid, but to a toxalbumin, phallin. This fungus is the *Amanita phalloides*. Eighteen cases are tabulated, from which it is learned that the period which usually elapses between the ingestion of the fungus and the appearance of the first symptoms averages ten to twelve hours; the average period in which it proved fatal, seventy-two hours; the cases treated by atropine and belladonna proved fatal; half the cases were under twenty, and a third under ten years of age. The most commonly observed symptoms of phallin poisoning are vomiting not occurring for ten to twelve hours, diarrhea, pain in the abdomen, cramps of stomach and diaphragm, thirst, cold sweats, collapse, headache, delirium, suppression of urine, slight jaundice, subnormal temperature, and sometimes cramps in the limbs. Post-mortem changes are, absence of rigor mortis, hypostatic discoloration, inflammation of the gastro-intestinal mucous membrane, localized ecchymoses of the liver, alimentary canal, pleura and lungs, enlarged solitary glands, fatty degeneration of the liver, fluidity of the blood and hyperemia of the meninges. The treatment consists in lavage, morphine for pain, potassium permanganate to decompose any phallin left in the stomach, and saline infusion. Patients treated by injection of artificial serum have recovered. The recognition of *Amanita phalloides* is easy. It is always white beneath the cap. The top, though frequently nearly white, is traced with yellowish-green, and the stem is bulbous.

Tuberculosis Treated with Dr. Marmorek's Serum.—From a series of five cases of tuberculosis treated with Dr. Marmorek's serum, HAROLD F. BASSANO deduces the following conclusions (*Lancet*, Sept. 9, 1905). The beneficial effects of the serum are most marked in the "surgical" forms of the disease. No objectionable features whatsoever follow the injections except those insignificant discomforts dependent on the introduction of the equine serum into the human body, which are not due to the specific antitoxin, such as local urticarial rash, tenderness at the site of injection and slight general malaise, all of which pass off in a few hours. Pyrexia is diminished, though the fall in temperature is sometimes preceded by an initial rise occurring within twelve hours, rarely exceeding 1° F. Pain in the "surgical" forms of the disease is almost invariably alleviated. In the case of tuberculous peritonitis great relief was constantly experienced within twenty-four hours after injection. In the case of hip-joint disease also this effect was well marked. The amount of sputum in pulmonary tuberculosis is rapidly diminished except that an initial increase takes place when the injections are commenced. In consequence of these results due to the arrested progress of the disease, the general health rapidly improves and the patient gains weight. The method of dosage now recommended by Dr. Marmorek is the injection of 5 c.c. every other day for three weeks, followed by a clear three weeks' interval, after which injections are repeated. The site of injection is preferably the abdominal wall or thighs, and should be varied as much as possible.

Heart Disease in San Francisco.—W. F. CHENEY (*Journal A. M. A.*, August 26) has investigated the incidence of heart disease, as shown by the medical clinics of Cooper Medical College, and the post-mortem records of Dr. William Ophüls. Only organic disease was estimated and the diagnoses were made with special care. The percentage of the clinical diagnoses of heart disease was 3.7 per cent., while that of post-mortems was much larger, 9 per cent. The discrepancy is explainable in several different ways. Mild cases are often unrecognized by the patients as ailments, and they come to the post-mortem table from other reasons. The clinical records also include all ambulatory cases. In many actual cases of heart disease, the symptoms were too dubious for positive recognition of the conditions. The patients were nearly all of the working class. He concludes that heart disease is comparatively frequent in San Francisco, as in all other large cities. Among valvular troubles the most frequent form found was mitral regurgitation; aortic regurgitation is second, mitral stenosis third, and aortic stenosis last—undoubtedly a rare affection. Myocardial disease was found frequently. Its causes are supposed to be those of arteriosclerosis, and the latter condition is even more frequent than the myocarditis.

PHYSIOLOGY.

The Chemical Correlations Involving Growth of Organs.—The fourth and last of the Croonian Lectures by E. H. STARLING (*Lancet*, Aug. 26, 1905) states that the best method of producing hypertrophy of an organ is by increase of its physiological activity. If a healthy animal is injected with a pure preparation of secretin and this stimulus is continued for some time, besides exciting the pancreas to secretory activity, it calls forth a corresponding building up of protoplasm and secretory granules. The thyroid gland presents the most familiar example of a chemical correlation evoking the building up of tissue, as is evidenced in the administration of it in cretinism. The largest group of correlations between the activity of one organ and the growth of others is formed by those widespread influences exercised by the generative organs on the body as a whole, and on the parts of the body. The effect of the removal of these organs of both sexes on the growth and disposition of the individual has been known for centuries. Recent confirmatory experiments demonstrate that the ovaries and organs provide an internal secretion elaborated by the follicular epithelial cells or by the interstitial cells of the stroma, which, circulating in the blood, induces menstruation and heat. A still more striking example of growth in response to chemical stimulation from distance organs is afforded by the mammary gland. At birth these glands are limited to a few ducts. At puberty in the human female there is some gland growth; the main increase, however, being due to fat, but with the occurrence of pregnancy a true hypertrophy of the gland begins at once and continues steadily up to birth. These facts demonstrate the intimate connection between the growth and activity of the gland and the growth of the fetus in utero. It was formerly believed that the connection between the gland and the uterus was a nervous one, but recent research has presented striking evidence that the

nexus in question is a chemical one, though opinions differ widely as to the seat of formation or origin of the chemical stimulus. In a preliminary series of experiments rabbits were injected every day for a fortnight, some with an emulsion prepared by grinding up ovaries of pregnant rabbits, and others with a similar emulsion prepared from the placenta and uterine mucous membranes, but without effect on the mammary glands. Finally rabbits were injected with an extract of fetuses, which after a varying length of time invariably produced hypertrophy and secretion in both nulliparous and multiparous animals. Similarly the extract of pregnant ovaries has been shown to produce some enlargement and congestion of the uterus. The question arises whether the hypertrophy and the subsequent secretory activity of the gland can be due to one and the same hormon. The evidence indicates that such is the case. During the whole of pregnancy the mammary gland is receiving a continual inhibitory or assimilative stimulus from the source mentioned, the result being a true hypertrophy of the gland. As soon as partuition occurs the source of the inhibitory stimulus is removed, the cells, built up to a high grade of activity, begin to break down, resulting in the production of milk.

Hemolytic and Hemosozic Serums.—MARC ARMAND RUFFER and M. CRENDIROPOULO publish some experiments (*Brit. Med. Jour.*, Sept. 9, 1905), from which they conclude as follows: (1) That bile contains at least two hemolysins or groups of hemolysins; (*a*) biliary hemolysin No. 1, insoluble in alcohol, which produces a hemosozic serum when injected into rabbits; and (*b*) biliary hemolysin No. 2, which produces no hemosozic serum when injected. (2) Bile contains a hemosozic precipitate which, when injected into rabbits, produces a hemolytic serum. (3) The hemosozic precipitate added to bile never prevents completely the hemolysis produced by bile. (4) The hemosozic precipitate neutralizes the hemolysin insoluble in alcohol, but not the hemolysins soluble in alcohol. (5) The hemosozic precipitate prevents the hemolytic action of a serum produced by the injection of bile. These experiments seem to throw light on some of the facts observed concerning the serums of animals injected with lower micro-organisms or their products. A culture most probably contains, like bile, substances antagonistic to one another; in consequence, the serum of an animal injected may contain several new substances. Some may inhibit or predispose to infection, some may neutralize and some increase the effect of bacterial poisons; some, again, may have no specific action whatever. Such a hypothesis may account for the impossibility of increasing the antitoxic power of certain specific serums, or of obtaining a serum neutralizing more than the minimum fatal dose of certain pathogenic bacteria.

Effects of Ether Anesthesia on Renal Activity.—The following investigations were undertaken by HAROLD, PRINGLE, CHARLES B. MAUNSELL and SETON PRINGLE (*Brit. Med. Jour.*, Sept. 9, 1905) to determine clinically the influence of ether anesthesia on the secretion of urine, both as regards its quantity and its nitrogenous content. The method adopted was to take periods before, during and after anesthesia, as follows: (1) Twenty-four hours ending 9 A.M. on the morning of operation; (2) from 9 A.M. until immediately preceding the anesthesia; (3) during the induction of anesthesia; (4) first half-hour of complete anesthesia; (5) second half-hour; (6) third half-hour; (7) six hours following anesthesia; (8) twenty-four hours following period 7. The bladder was emptied by catheter at the end of each period. The total nitrogen was estimated by Kjeldahl's method. The amount of urine, showing the rate of secretion in cubic centimeters per half-hour for the several periods averaged 24, 28, 42.2, 58.73, 5.56, 2.95, 0.6, 15.2 and 8.82 respectively. The total nitrogen, showing rate of excretion in grams per half-hour for the several periods averaged 0.206, 0,271, 0.045, 0.022, 0.005, 0.132 and 0.166 respectively. In reviewing the foregoing results it is seen that during the time of full anesthesia not only is the amount of urine reduced, but the excretion of nitrogen constituents is diminished to such an extent as to amount to practical suppression, and this condition of renal inactivity seems to increase the longer the anesthetic is continued. This inhibition of renal activity must exercise a most injurious effect on the general metabolism and condition of the patient.

Chemical Reflexes of the Alimentary Tract.—The title mentioned is the subject of the second of the Croonian Lectures delivered by E. H. STARLING (*Lancet*, Aug. 12, 1905) on "The Chemical Correlation of the Functions of the Body." After referring to the digestive mechanism of the lower animals he traces briefly the physiological experiments from which the theory that digestion was accomplished purely by nervous reflexes was deduced. Since physiologists failed to obtain invariable results from nerve stimulation the work was pursued further, and it was found that the introduction of acid into the duodenum evoked a reflex flow of pancreatic juice, even after division of the vagi and splanchnics or complete destruction of the spinal cord. This was first considered to be a peripheral reflex, but by further experimentation it was demonstrated to be absolutely independent of any nervous channels whatsoever, and was in reality a chemical reflex. The entry of acid into the duodenum causes the production in the mucous membrane of a chemical substance called pancreatic secretin. This is rapidly absorbed into the blood and travels to the gland, the cells of which it excites to secrete. When obtained from one animal and injected into another it will cause a secretion of pancreatic juice. Secretin is a substance of the same general distribution as adrenalin, is unaltered by boiling, soluble in alcohol and more or less diffusible. It is suggested that the formation of secretin by acid is a hydrolytic process acting on a pro-secretin substance to be found in the epithelium of the upper small intestines, but this body has not been isolated.

The Presence of Lithium in the Body.—That lithium is a normal constituent of human organs, and that it is also present during embryonic life, is the conclusion drawn by E. HERRMANN (*Pfluger's Archiv*, July 19, 1905). The topographical distribution of this substance has not yet been decided. The lungs contain a larger amount than any other organs, even in the embryo. There is no satisfactory explanation of this excess. The relations of lithium appear to be the same as those of magnesium. Whether the absence of lithium in any organ, as the liver, has any pathological significance has not yet been decided.

Experiments on Brain Replantation.—The extremely delicate texture and liability of the tissues of the central nervous system have precluded any attempt at transplanting or replanting these tissues

after they have been exsected. G. Saltykow (*Archiv f. Psych. und Nervenkr.*, Vol. 40, No. 2), however, undertook an investigation of the possibility of replanting a portion of the brain in its former site after it has been cut out, with surprising results. He experimented on young rabbits. He cut out a conical portion from the frontal lobe of the cerebrum, and returned it to its place. He performed this operation on a series of 20 rabbits, and afterward killed one at a time at stated periods varying from a few days to almost a year. He found that the replanted portion retained its vitality as much as eight days after the performance of the operation. In all cases, however, death of the ganglion cells occurred sooner or later. The neuroglia cells survived a longer time. Before death of the cells active mitotic changes were noted in them. At a later time regenerating nerve fibers were observed in the portions of brain bordering on the wounded area.

Silver Reaction in Animal and Vegetable Tissues.—The relation of the chlorides to the activity of the cells is still veiled in obscurity. A determination of this relation is of considerable importance, since an excess of chlorides is now recognized clinically as a pathological manifestation. A way toward clearing up this obscurity is opened up by A. B. Macallum (*Proc. Royal Soc.*, June 28, 1905), who points to the familiar silver reaction of the tissues (the blackening produced by nitrate of silver), as a means of determining the distribution and the relative quantity of the tissue chlorides. He finds that intracellular material and structures, including the so-called cement substance of Von Recklinghausen, are rich in chlorides, and that normal nuclei of animal and vegetable cells are absolutely free from them. It would appear from the latter fact that the chlorides do not take any important part in the directive energies of the cell, since these have their seat in the nucleus.

The Chemical Mechanism of Gastric Secretion.—The tendency of modern investigation on the forces that regulate the various secretory mechanisms of the digestive tract is to attribute a longer sphere to the chemical aspect of regulation than to the nervous nodes of secretory excitation. The work of J. S. Edkins (*Proc. Royal Soc.*, Aug. 3, 1905) is in line with that of Pawlow, Starling and others, who have shown the beautiful connection between the secretory process of the pancreas and certain substances found in the mucous membrane of the small intestine. This "secretin," which is normally found in the latter, and may be obtained in extracts of it when injected into the blood stream of the animal, excites the flow of pancreatic juice. The author sought to investigate the possibility of the existence of a similar form of chemical regulation in the case of the gastric secretion. With this in view he made extracts of the mucous membrane of different portions of the stomach and injected them into the jugular vein of the dog. The extracts were made with solutions of dextrin. He fourd that the mucous membrane in the pyloric region only contains a substance which when thus injected excites the flow of gastric juice.

THERAPEUTICS.

Treatment of Pityriasis Versicolor.—P. Gallois, at the Société de Thérapeutique de Paris, warmly recommended the use of oxygen water for the treatment of pityriasis versicolor, especially for cases which are spreading. Hydroxyl is not only a very good disinfectant, but is also a decolorizing agent. It is spread over the parts affected with a saturated pledget of wool. After ten days to a fortnight of this treatment, even the most extensive cases were compleely healed, and remained without relapse for over two years. Latterly he has added borax 3i to 3viii of H_2O_2 (in 12 volume per cent. solution) and obtains even quicker results.

Amyl Nitrite in Hemoptysis.—M. J. Rouget reports (*Bulletins et Memoires de la Soc. Med.*) good results obtained by adopting Francis Hare's suggestion for the use of amyl nitrite inhalations in hemoptysis. The first case in which he tried it was one of a severe and obstinate character, which had resisted all the usual methods of treatment: Rest, cold, morphine, ergotin, dry cupping, ice-bag, etc. The first inhalation (10 drops) greatly diminished the bleeding, and a second dose stopped it completely. After this the patient kept the remedy at hand, and was able to avert fresh attacks, which he could always predict, from the arrival of a certain taste in the mouth. Nine other cases showed equally good results. The effect is due to the toxigological properties of the drug, which lowers the blood-pressure and produces vasomotor dilatation in the peripheral vessels. Filehne has proved that the capillaries in the lung are exempt from the latter effect.

A Safety X-Ray Tube.—Since the introduction of the X-ray as a therapeutic measure serious injury to patients and physicians have resulted after a short or long period of application. To obviate these dangers and to secure a tube which would not be cumbersome, H. G. Piffard (*N. Y. Med. Jour. and Phila. Med. Jour.*, July 15, 1905) details the advantages of two tubes which he had constructed, one by an English, and one by an American maker. Illustrations of the two tubes are given. They are perfectly satisfactory in every way, and the author considers them perfectly safe for clinical purposes, so far as the operator is concerned.

Oil in Stomach Diseases.—Pure oil has a very favorable influence upon excessive formation of acid in the stomach; it relieves spasm and pain and possesses a high nutritive value. F. Merkel (*Deutsch. Arch. f. klin. Med.*, Vol. 84, Nos. 1 to 4) first washes out the stomach, then pours pure olive oil into the stomach through the tube, or else instructs the patient to take it by mouth twenty to thirty minutes before meals in quantities of a tablespoonful. Excellent results were obtained in pyloric stenosis with hyperacidity after ulcer, chronic ulcer with hyperacidity, and hyperacidity with pyrosis.

Treatment of Exudative Pleurisy Complicating Tuberculosis.—H. Dörfler (*Deutsch. Arch. f. klin. Med.*, Vol. 84, Nos. 1 to 4) has seen remarkable improvement set in in cases of pulmonary tuberculosis, if an exudate developed in the pleura, and this exudate was removed by means of thoracocentesis. The curative influence of this operation is best explained as follows: After the exudate has formed the affected lung is much compressed, and consequently rendered anemic. As soon as the fluid is withdrawn, an intense hyperemia sets in, which has the same influence upon tuberculous processes in the lung that Bier's constriction has upon tuberculosis of the joints. Since the large majority of cases of pleuritis are tuberculous, it follows that thoraco-centesis is indicated in almost all. Possibly many cases of pulmonary tuberculosis will be favorably affected if an exudate is brought about artificially and then removed.

Serum Therapy in Erysipelas.—As an addition to the former series reported, James C. Ayres publishes observations (*Med. Rec.*, Aug. 26, 1905) upon thirty-three cases of erysipelas treated by antistreptococcus

serum. Only those patients who were admitted to the hospital on or prior to the third day of the disease received serum treatment. The average dose of serum administered was 20 c.c., given in one or two doses. The results showed that desquamation began on an average of 3.6 after the first dose; that the initial leucocytosis averaged 17,540, whereas on the day of desquamation the counts showed an average of only 8,500; that, though alhuminuria was present in 40 per cent., over one-half cleared up by the second day after receiving the serum; and that the average duration of the disease was 6.8 days, as against 7.6 days in the previous series of fifteen cases, and 9.4 days in a series of seventy-nine cases treated by the older methods. The mortality was 9.9 per cent. The shortening of the average duration of the disease by 2.6 days about expresses the value of this form of treatment.

Treatment of Hemoptysis.—There are three forms of hemoptysis pertaining to tuberculosis, depending on the stages of the disease, according to G. LEMOINE (*Jour. de Méd.*, Aug. 13, 1905). They are: (1) The premonitory form, appearing before the local signs are manifest. (2) The form associated with congestion, accompanied by signs of incipient tuberculosis. (3) The hemoptysis belonging to the period of cavity formation and ulceration. Treatment of the first form: Absolute rest in bed; avoidance of speech; administration of ergotin, either by mouth or hypodermically; local applications of mustard plaster night and morning; a daily pill of aloes, .10 to .15 grams; hot footbaths night and morning; iced drinks, particularly lemonade. The treatment of the second form, besides that of the tuberculous process itself, is the same as that of the first. The treatment of the third form differs according to whether fever is present or not. In the former case, the management is the same as in the premonitory form. The patient should be in a cool, airy room, in a semirecumbent position; he should rest as quietly as possible. Dry cups or sinapisms may be used. He should get a hypodermic injection of Tanret's ergotin, one-half to one milligram, or of adrenalin, one-half a milligram, daily. Ergotin and adrenalin act only on blood-vessels supplied with muscular tissue; but the capillaries of the lung are almost entirely deficient in this. In this case the various emetics are preferable. According to Trousseau, they have a remarkable hemostatic effect. One may prescribe the following:

℞ Pulvis ipecac..... 3.00 grams
Syrup ipecac..... } aa 30.00 grams
Syrup Diacode (Papaveris) }

M. et S. One to two teaspoonfuls every three hours until nausea is produced. Stop immediately if vomiting occurs. Continue this treatment for one or two days. If the case gets worse, or the fever increases, substitute tartar emetic for the ipecac.

Effects of Adrealin on Animals—Some extremely interesting experiments on the production of aneurisms in rabbits by the intravenous injection of adrenalin are reported by E. SCHEIDEMANTEL (*Virchow's Archiv*, Vol. 181, No. 2). The animals had been treated from several days to several months, and the initial dose was three minims, increased gradually to ten. Occasionally death set in shortly after an injection, with symptoms of embolism, but in the majority of cases the injections were well borne. Later, respiratory symptoms developed, and at autopsy, bronchopneumonic processes were detected, probably secondary to infarction from the thromboses ear-veins. In almost all instances advanced changes were present in the aorta. In the thoracic portion, the walls were much thickened and rigid, and on close inspection numerous placques of calcareous deposit were seen. The intima was always free from thrombi, showing that this layer was not the seat of the lesion. The changes were usually so advanced that veritable aneurisms had formed, particularly at the beginning and the arch of the aorta. Microscopically, the elastic fibers were found torn and the muscular fibers degenerated. All the changes occurred in the media, and the intima did not even show a proliferation of the endothelial cells. The fact that adrenalin is able to set up a cirrhosis in the liver, could not be corroborated by the author. With the exception of infarction of the lungs and occasionally necrotic foci in the liver, no other changes could be detected. The arterial lesions are in no way allied to those of human arteriosclerosis, since in the latter the intima is chiefly involved. The pathogenesis of the condition is best explained as follows: Adrenalin causes an intense spasm of the smaller vessels, which is followed by an undue dilatation of the beginning of the aorta. The elastic fibers here will stretch and eventually tear and undergo degeneration with secondary deposit of lime salts. It is very questionable if a toxic action of adrenalin plays any part. In those animals which had been treated the longest, aneurisms were not found, but instead, a uniform, diffuse thickening of the greater part of the aorta. It is thus possible that the lime may eventually be absorbed and make way for connective tissue.

Static Electrical Treatment of Neurasthenia.—Inasmuch as the clinical types of neurasthenia are purely arbitrary, having for their basis a preponderance of symptoms referable to the cerebral, spinal, or sexual apparatus, the static treatment should be viewed through the morbid processes as we know them. R. W. MILLER (*Virginia Medical Semi-Monthly*, June 9, 1905) gives a brief outline of the rationale of treatment as practised. Neurasthenia results primarily from an impaired metabolism which induces nerve weakness and nerve irritability. From these we might expect anemia, indigestion, precordial pain, irregular action of the heart, in short, disorganized conditions of the secretory and excretory organs associated with hysteria and hypochondriasis. Scarcely any treatment will meet as many of these symptoms as static electricity: (1) It controls local congestion; (2) it relieves pain; (3) it quiets irritated nerves; (4) it grants peaceful and natural sleep; (5) it favors general functional activity. In brief, it is a counter-irritant, sedative, hypnotic, narcotic and general tonic. For general treatment, the wave-current is generally employed. The patient is placed upon an insulated platform, the negative pole grounded, and the positive pole, terminating in a zinc plate, or tinsel braid, is bound upon the bare skin of the patient, the point selected being dependent upon the part giving the most expressive symptoms. The machine is then started and the spark-gap opened from one to four inches: this treatment is continued twenty to thirty minutes daily. As a result we find: (1) Metabolism stimulated. (2) Improved nutritive processes. (3) Elimination of objectionable accumulations. (4) Sleep. (5) Increase of weight. After five or six treatments the function of the sweat glands is re-established. Where insomnia persists, two treatments may be given each day. An unsatisfactory peripheral circulation may be relieved by the application of friction sparks. The undulatory current may be used in conditions of bowel atony and of sexual neurasthenia. "Lastly, but not least, great psychic impressions are made by the wise look and curious machine upon the hysterical and hypochondriacs. To the layman, electricity is a by-word—a joke; but a fair investigation will undoubtedly convince the most skeptical."

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SATURDAY, OCTOBER 7, 1905.

A NEW FEATURE FOR SOCIETY MEETINGS.

At the meeting of the Pennsylvania State Medical Society, which took place at Scranton on Tuesday, Wednesday and Thursday of last week, there was announced on the program what was called a new departure with regard to one of the evening entertainments provided for the attending members, which seems worth while calling to special attention. Perhaps the least satisfactory feature about it was its name, it was called "A Conversazione." It consisted, however, of a number of very interesting features. Besides a general reception, with music followed by dancing, and a supper which for at least an hour absorbed the attention of all those present, there was a series of intellectual treats provided in the large building of the International Correspondence School, that could scarcely fail to arouse interest in those who do any reading aside from strictly medical science, in their ordinary avocations.

A member of the teaching staff from Columbia University, New York, Dr. Kellicott, was present to discuss the interesting subject of Mimicry and Protective Coloration and to illustrate it by means of lantern slides. There are phases of this subject, though quite apart from medicine, that can scarcely fail to catch the attention of physicians because it involves so many of the principles on which that intricate and often pathological process of cutaneous pigmentation is founded. In another room there was a demonstration of the workings of an electrical engine which represents very probably the acme of perfection in electric machinery up to the present time. In still another room there was a demonstration of radium and especially of its beautiful qualities as manifested in the radioscope.

Other interesting features on the program were a lecture by Dr. George T. Moore, of the Department of Agriculture, who discussed the subject of the inoculation of the soil with various forms of nitro bacteria in order to secure its enrichment. This demonstration of the profitable effect of microbes served an excellent purpose in making physicians realize that the little germs which by chance produce certain diseases in human beings are only accidentally pathologic, but that most of them represent beneficent forces of the highest kind in natural history.

An excellent feature was a lecture by Mr. Albert Kelcey, of Philadelphia, the architect and landscape gardener who was the designer of the model city at the St. Louis Fair. Physicians are interested in the city beautiful, no matter where they may live, not alone because life is more livable where cities are beautified, but because their beautification always means the leaving of open spaces, "the lungs of the city," as they have been so appropriately called, which enable the inhabitants to get so much better air than would otherwise be possible. Physicians need to keep in touch with the advances that are being made in this line, and the influence that they possess can be used to no better purpose than in securing improvements of present conditions and pointing out how much of benefit to health as well as pleasure of mind, will accrue from this new progress in city life.

Among some of the other attractions that were announced for the occasion was a demonstration of the mercury tube light invented by Mr. Cooper Hewitt, of New York, the explanation of the process of mining coal, with illustrations of its dangers, by means of stereopticon views, and a talk by the distinguished traveler and war correspondent, Dr. Dwight L. Elmendorf, of New York. It is easy to understand that these represent an evening's occupation thoroughly worthy of intellectual men and at the same time such as was sure to afford not only amusement and

entertainment, but also instruction. In recent years it has sometimes been the custom to have vaudeville performances instead of the usual after-dinner speeches, at the annual banquet of medical societies. It is true that anything that would replace ordinarily deadly monotony of after-dinner speaking might be welcome. Vaudeville, however, has not proved able to fill the bill satisfactorily, and has sometimes been a source of no little severe criticism, because of lapses into bad taste on the part of hired performers.

A series of interesting talks and demonstrations, such as was provided by the Scranton committee of arrangements for the Pennsylvania State Medical Society is almost sure to be a source of the most pleasant memories. Such entertainments, if given over a series of years, would be of the greatest educational value, and might be so arranged as to prove eminently suggestive for certain of the borderland sciences that are closely related to medicine, and that though they may not have practical applications in medical practice, still afford explanations of great medical principles and illustrations of medical borrowings from related sciences such as cannot be readily obtained in any other way by the busy practitioner. They would be interesting not alone to the practitioner from the country, but also to the city brethren, who are often curious to know about recent advances in science and yet have little or no opportunity to take advantage of the chances for learning about them that may be presented in ordinary public lecture courses.

ARTIFICIAL BIOGENESIS: A STEP FORWARD.

THE future historian will probably record the early years of the twentieth century as the age of revival of ancient scientific beliefs. If Ernest Rénan lived to-day, he would no doubt speak of this period as he said of the nineteenth century, that it was taking out of the waste-basket many things that the previous century had cast into it. Chemistry no longer derides the fond dreams of the alchemist, and the transmutation of elements is now considered more than a remote possibility. The bit of radium that continually evolves heat without losing in bulk or weight has rudely shaken the faith of the physicist in the law of the conservation of energy. The physiologist has caught the contagion of skepticism, and with iconoclastic zeal he is now trying to drag into the dust one of the most fundamental teachings of modern biology. The conception of spontaneous generation, which for nearly two thousand years was kept alive by the authority of Aristotle, and which was apparently shattered by the simple experiments of a long line of investigators, beginning in 1660 with Redi and ending in 1862 with Pasteur, has again asserted itself.

In the presidential address to the British Association for the Advancement of Science, in 1870, Huxley said: "With organic chemistry, molecular physics, and physiology yet in their infancy, and every day making prodigious strides, I think it would be the height of presumption for any man to say that the conditions under which matter assumes the properties we call 'vital' may not, some day, be artificially brought about." Has that day arrived? The announcement recently heralded in the press, of the artificial production of living organisms by Prof. J. Butler Burke of the Cavendish Laboratory of Cambridge University, at first appeared to be one of the products of that sensational journalism which is ever ready to distort the modest statements of the scientific discoverer. But the paper written by Prof. Burke in the *Fortnightly Review* for September has corroborated the earlier statements of his remarkable results. Dealing with supposed organisms which resemble at least, even if they are not closely related to the bacteria, Burke's discovery of the "radiobes" has already awakened the keen interest of the medical world.

These bodies were produced as the result of the exposure of bouillon to the emanations of radium. A small sealed tube containing 2½ milligrams of radium bromide was placed on the surface of bouillon contained in a test tube, which was then kept at a temperature of 130° C. for thirty minutes. At the end of twenty-four hours there appeared on the surface of the bouillon what looked like a bacterial culture. Examined by means of the $^1/_{12}$ inch objective, this was found to consist of structures closely resembling diplococci, varying in size from 3 microns to mere specks. They also look like crystals of calcium carbonate, but differ from the latter in being much smaller and soluble in warm water. Examined with the polariscope, they do not give the figures and changes of color which are characteristic of crystals, but the bouillon in which they are produced causes a left-handed

rotation of the plane of light. These bodies display unmistakable phenomena of growth, and have evidently developed from ultramicroscopic particles. When they exceed 3 microns in size there is a tendency for them to divide, each resulting part thereafter leading a separate existence.

The "radiobes," as these microscopic bodies have been termed, after six or seven days develop nuclei. A little later they stop growing and begin to segregate and multiply. By this mere fact of growth they are not to be differentiated from crystals; indeed in both cases there is a distinct limitation to the size which the particles may ultimately assume. But crystals, unlike the radiobes, do not "show the cyclic process, pass into higher forms and they decay, which is the test and guarantee of life." Crystals grow by accretion, while the radiobes grow by intussusception or assimilation. The latter exhibit a growth "from the minutest visible speck to two dots, then a dumb-bell shaped appearance, later more like frog's spawn, and so on through various stages until it reaches a shape largely different from its previous forms, when it divides and loses its individuality into minute crystals, possibly of uric acid."

The discovery of the radiobes was not a mere accident, but was the culmination of a long series of investigations on various phases of radio-activity. The mysterious emanations given off by radium afforded a new force with which to rearrange the molecular groupings of various organic substances.

The various steps that led up to the discovery of the radiobes may best be described in Prof. Burke's own words: "In the course of my previous work on phosphorescence I was induced to try whether the molecular groupings which, it was supposed, were formed during phosphorescence, by exciting sources, could also be produced in other organic bodies, whether they became luminous or not, so long as they are similarly acted upon. The first attempt was to bring about the condensation or formation of a complex aggregate round a nucleus, itself the seat of electromagnetic disturbances, as in radio-active particles, that might set up an aggregation of molecules, probably of an unstable kind, in its vicinity." With this end in view the author added some radium salt to a tube of glycerin, which was then immersed in liquid air. Crystals of glycerin were thus produced, but it was afterward found that liquid air without the radium could accomplish this result. This was also obtained in the case of gelatine. The author next devoted his attention to bouillon, "which was carefully sterilized under pressure at a temperature of 130° to 140° C. with radium for thirty minutes at a time. Two days later a culture was growing on the surface of the gelatine. Moreover, on repeating the experiment it was observed that the culture was still formed even when the tube was not frozen."

One of the most remarkable results in this series of investigations was the ability to get subcultures by inoculation in fresh media: "The subcultures did not show the slightest signs of growth for nearly six weeks. They then, however, did manifest a tendency toward development, but only to a very small extent." The last fact forms the basis of the conclusion that the radiobes are not bacteria.

The latter, simple as they appear, have nevertheless a remote ancestry, and it is suggested that the radiobes represent the distant stock from which the bacteria have sprung. It is quite natural, then, that these lowly forms of life, which in the course of countless ages have been profoundly modified by an ever-changing environment, should differ so markedly from the radiobes. Neither crystals nor bacteria, the radiobes are supposed to be molecular aggregations of a high degree of instability, which may have been produced, when the world was young, by the same forces which have now become the wand of the modern scientific wizard.

That at some time in the history of the world, life sprang spontaneously into being out of inorganic matter, is one of the tenets of the modern doctrine of evolution. Herbert Spencer believed that the formation of organic matter and the evolution of life in its lowest forms "took place at a time when the heat of the earth's surface was falling through ranges of temperature at which the higher organic compounds are unstable." Protogenesis connotes this conception of the origin of life in the remote infancy of the world, a conception which has universally established itself in the minds of biologists. Yet most of these deny the possibility of a similar origin of life at the present day. Quoting a writer in the New International Encyclopedia, "the origin of protoplasm was probably the result of a combination of circumstances which certainly never occurred before in the history of

our planet, and which has never happened since. The phenomenon of protogenesis, after taking place once for all, could never have again occurred. Such is the nature of cell-division, of sexual reproduction, of growth, and of heredity, that it would be contrary to the course of nature to suppose that it was ever afterward necessary for it to again occur. After protoplasm appeared, the earth and ocean probably became too cool to supply a sufficiently high temperature, or chemical compounds of the right degree of stability to form protoplasm."

This statement illustrates that severe dogmatism which has ever been an obstacle to scientific progress. If now one weigh the observation of Burke, "that the products of radio-active bodies manifest not merely instability and decay but growth, subdivision, reproduction and adjustment of their internal functions to their surroundings, a circumstance which I think will be found equivalent to nutrition, the conclusion is irresistible that there may be, after all, some means of effecting artificially those molecular redistributions which are necessary in biogenesis."

It would be premature to decide that the radiobes are living organisms, in spite of the fact that they exhibit all the essential vital phenomena. The criticism might be legitimately urged that there have been many successful attempts to create combinations closely simulating the activities of protoplasm.

One of the earliest of these was made by Bütschli, who produced artificial emulsions which showed a microscopic structure almost identical with that of protoplasm. He also showed that drops of oil-emulsions suspended in water exhibit ameboid changes of form. The experiment of Quincke has become classic. He suspended in water a drop of almond oil and chloroform, and then by means of a capillary tube caused a drop of a two per cent. solution of sodium carbonate to approach the globule. The latter began to exhibit movements strikingly similar to those of amebæ. It was shown that these movements are due to the diffuse formation of a soap on the surface of the suspended globule.

The latest of these attempts has been made by Stephane Leduc (*Comptes Rendus de L'Acad. des Sciences*, July 24, 1905), who succeeded in producing an artificial cell exhibiting the phenomena of growth and germination. In a solution of copper sulphate he suspended a drop of saccharose solution, containing a trace of ferrocyanide of potassium. The drop was soon surrounded by a thin membrane of ferrocyanide of copper. This membrane was permeable to water but not to sugar. The result was that the drop imbibed water and increased in size. It was also seen to put out prolongations, similar to the pseudopodia of amebæ. As soon as the surface tension of the drop exceeded the internal cohesion, self-division occurred, and each resulting half, surrounded by a new pellicle of ferrocyanide of copper, began to increase in size and then subdivide like its parent-drop.

These experiments merely show that vital phenomena may be closely imitated, but do not shed any light on the question of the plausibility of Prof. Burke's claim that he has caused the artificial production of living organisms. His results are certainly more startling than any that have hitherto been obtained in this field. It is interesting to note that R. Dubois, of Lyons, has recently observed bodies similar to the radiobes, to which he gave the name "vacuolides."

An ingenious explanation of the possible physical character of the radiobes has recently been advanced by Sir William Ramsay (*The Independent*, Sept. 7, 1905). Since radium has the power of decomposing water into its constituent elements, it is quite probable that when particles of radium bromide are brought into contact with the nutrient broth, part of the water contained in the latter is decomposed, and the resulting gases are immediately surrounded by a thin membrane formed by the coagulation of the albumin. This coagulation is caused by the radium emanations which are mixed with the gases. These gaseous globules therefore constitute the radiobes. The emanations contained in them effect a further decomposition of the water that osmoses through the albuminous coat of the globules, and the result is a swelling of the latter. At a certain stage the albuminous coating breaks, and the gases escape, to be in turn surrounded by a thin layer of albumin. This accounts for the budding forms and for those that exhibit the manifestation of cell-division. The emanations which may persist in the globules for a thousand years thus account for the formation, growth, budding and fission of the radiobes. These reflections have not yet been experimentally verified by their author.

The important work of Prof. Jacques Loeb

and his pupils on the artificial fertilization of the egg, has been incorrectly hailed by the sensational press as the actual artificial production of living organisms. Even superficial acquaintance with the terminology of the science of life would have prevented this gross misconception. Yet, in spite of the utter disparity between the investigations of Burke and Loeb, the work of the latter serves to shed considerable light upon the researches of the former. It has at least been shown that the cellular changes that succeed the entrance of the spermatozoon may be similarly produced by artificial means. Martin H. Fischer and W. Ostwald (*Pflüger's Archiv*, Feb. 1, 1905) have indicated that the process of fertilization is purely a physicochemical phenomenon. They found that a few minutes after the head and neck of the spermatozoon have penetrated the ovum, a light spot appears in its neighborhood, from which the protoplasmic granules arrange themselves in radial lines. This phenomenon of radiation is known as the astrosphere, and takes place in the various cases of natural and artificial parthenogenesis. The authors found that all those agents that transform hydrosols (the soluble state of colloids) into hydrogels (the insoluble state) are capable of bringing about fertilization of the egg. Natural as well as artificial fertilization thus consists in the formation of an astrosphere by means of a transformation of hydrosols in the protoplasm into hydrogels.

That the process of fertilization, which has been regarded as belonging peculiarly to the domain of vital phenomena, should now be revealed as a physical mechanism, that may be started, controlled, or stopped according to the will of the experimenter, is a fact which cannot but strengthen the hope of ultimately controlling the very genesis of life itself. The actions of the bodily ferments have been closely imitated by the various metallic enzymes. The whole trend of modern biological research is in the direction of a chemical and mechanical interpretation of life. The mysterious "vital spark" may be identical with some of the physical agents which have recently loomed into the ken of the physicist. There is really nothing more mysterious about life than about the constitution of matter or the nature of energy. It is now recognized that matter is the seat of constant disturbances, of disintegrations and reconstructions. The startling manifestations of radio-activity led Prof. Burke to inquire: "Cannot this instability and decay of inorganic matter of atoms of highly complex structure, in suitable environments, be the seat of disturbances, of fermentations, and of metabolisms?" It may ultimately be shown that there is no real chasm separating the organic from the inorganic world, that both are manifestations of the same fundamental thing. The utter impossibility of sharply separating the living from the non-living is vividly reflected in the words of Prof. William K. Brooks, of Johns Hopkins University: "May not the truth that biology is the physics and chemistry of living beings be true only when it is joined with the converse truth that physics and chemistry are part of biology? It is only as living beings that we care to know. If the modest biologist were to assert that the biological aspects of the physical science are the only basis for rational interest in these sciences, his good friends in physical and chemical laboratories would no doubt charge him with arrogance, although they must admit that the principles of science, as distinct from the concrete sciences, are part of biology."

It may be true that the radiobes represent a stage in the evolution of the inorganic into the organic world. Unfortunately these bodies and their cultures are so small that an investigation of their chemical constitution has been impossible. Their behavior at least shows that they are markedly unstable, and in this they agree with living things. It was Pflüger who advanced the hypothesis that the difference between non-living and living proteid is a chemical one. In the former nitrogen exists in combination with hydrogen in the NH_2 (amide) group, while in protoplasm the nitrogen exists in combination with carbon, in the CN (cyanogen) group. The cyanogen compounds, of which fulminic acid is one, represents some of the most unstable or explosive substances known to chemistry. Living substance exhibits this same instability. In the process of anabolism the N. is severed from the H. and joined with the C. to form a highly labile compound. In catabolism the N. leaves the C. and goes back to the H. and is excreted in the form of $(NH_2)_2CO$, (urea). The experimental evidence upon which Pflüger's theory is partly based is the fact that when nuclein is treated with dilute mineral acid, one of the decomposition products, adenin ($C_5H_5N_5$), is an isomer of hydrocyanic acid.

If Pflüger's hypothesis is correct, one can readily understand how the radium emanations, themselves the product of disintegration of matter in a highly unstable form, should set up in bouillon the same atomic rearrangements which are effected in proteid matter by the living cells during the process of assimilation.

About ten years ago, the world was startled by the announcement from the chemical laboratory of Prof. Moissan, of Paris, that the latter had succeeded by means of high pressure and the intense heat of the electric furnace, in manufacturing diamonds from amorphous carbon. Although too small to be of great commercial value, the diamonds thus produced were no different from those dug out of the earth. Moissan had merely imitated Nature's own process. With the same agents at his disposal, namely, great heat and pressure, he succeeded in producing on a small scale the remarkable metamorphosis of carbon, which Nature on a large scale had accomplished in her vast terrestrial laboratory. With a slight stretch of the imagination one may compare the researches of Burke with those of Moissan. Employing a source of energy which is known to have existed at a time when the earth was gradually cooling from its incandescent state, namely, radio-activity, and which may have participated in the transformation of the lifeless clod into the pulsating organism, he has imitated Nature's handiwork. The radiobes of Burke may thus be regarded as bearing the same relation to the non-living compounds of the sterilized bouillon, that the diamonds of Moissan bear to the pieces of structureless charcoal.

ECHOES AND NEWS.

NEW YORK.

First Harvey Lecture.—The first lecture of the Harvey Society course will be given by Prof. Hans Meyer, of Vienna, at the New York Academy of Medicine on Saturday evening, October 7, 1905, at 8.30 P.M. Subject: "Die Theorie der Narcose." This lecture will be delivered in German.

Society of the Medical Inspectors of the City of New York.—The last regular meeting of this Society met Tuesday, October 3. The program was as follows: "Demonstration of a Sanitary Closet Seat," by Albert F. Lesler, M.D.; "Physical Deformities of School Children and Their Control," by Edward M. Thompson, M.D.; "A General Consideration of the Contagious Diseases of the Scalp and Skin as Observed in Children of the Public Schools," by Jacob Sobel, M.D.

Society of Social and Moral Prophylaxis.—The October meeting of this society will be held October 12, 1905. The following papers will be read: (1) "Should the youth of the country be educated in a knowledge of Sexual Physiology and Hygiene?" by Dr. Prince A. Morrow. (2) "What should be the nature and scope of this education?" (3) At what age should this instruction be given, and should it be progressive according to the age of the individual?" by Dr. E. L. Keyes. (4) "Through what agencies should this instruction be given—through parents, physicians, or teachers? Should our educational centers—high schools, colleges and universities—be utilized for this purpose?" by Mr. Luther R. Gulick and Rev. Lyman Abbott. (5) "Should the teaching of Sexual Physiology be incorporated in our text-books of Elementary Hygiene?" by Dr. P. M. Balliet, School of Pedagogy, New York University.

St. Elizabeth's Home for Convalescents.—St. Elizabeth's Home for Convalescents was opened Thursday of last week, at Spring Valley, N. Y., and becomes one of the activities under the auspices of the Special Works Committee of the St. Vincent de Paul Society. Thomas M. Mulry, president of the Particular Council of New York; Dr. D. J. McMahon, supervisor of Catholic charities; J. J. Barry, chairman of the Fresh-Air Committee, and Bishop Cusack took part in the ceremonies. The home will bear a very direct relation to the relief work carried on throughout the city by the different branches of the St. Vincent de Paul Society. It will be maintained the year 'round in buildings not far from the summer home at Spring Valley, and there is a capacity for forty in residence. The beneficiaries will include girls, workers in stores or factories, who may not be hospital cases, but are in pressing need of rest and building up; convalescent women, discharged by the overcrowded hospitals, but not yet fit to take up the full burdens of life; and the mother who "steps from the maternity hospital into the street, with her newborn babe at her breast, having neither friend nor home to go to."

Tuberculosis Hospital in New York State.—The trustees of the New York State Hospital for Incipient Pulmonary Tuberculosis in the Adirondacks last week issued their completed statistics for the first year, which show an excellent percentage of recoveries and improvements. There were admitted during the year 207 patients, more than half of whom were incipients, according to the strict definition of the term. There were no deaths. Of the 105 patients discharged, 52 were apparently recovered. The word "apparently" is used advisedly, as the officers do not feel that a consumptive can be said to be cured until he has been two years or more without any symptoms of the disease; 26 arrested cases are reported; 16 improved during their stay here, while 11 left without any improvement. Of the latter number, 4 remained in the hospital less than a week, 5 less than a month, and 2 less than six weeks. Great care is exercised in the first examinations, and advanced cases will not be sent to the hospital. Treatment at the hospital consists mainly of outdoor air, wholesome food and rest. Hardly any medicine is given. During the summer months tent life has made the open-air treatment ideal, because nearly the entire time has been spent on the verandas or in the tents with all the flaps raised. The patients have three full meals and two or three luncheons a day. The effect of the generous diet is shown by the marked gain in weight; 90 of the 105 gained an average of 10.57 pounds each. The Ray Brook Hos-

pital, which is a State institution, is three miles from Saranac Lake, toward Lake Placid, on a tract of land containing 516 acres, adjoining the State forest reserve. The altitude is 1,635 feet. The buildings face the south, and are located to secure protection from the wind. The hospital is intended for patients suffering from tuberculosis in the incipient stages, who are unable to pay for treatment at a private sanatorium. People entitled to free treatment secure admission through the local authorities having charge of the poor in the town, city, or county in which they live.

New York City Health Conditions.—Dr. Thomas Darlington, President of the Health Board, has submitted to Mayor McClellan his report for the first six months of the year. The Commissioner finds that very gratifying results have followed the extra vigilance in inspecting schools and in the analysis of samples of food and milk in the department's laboratory. The total nmuber of inspections in all branches for the six months was 999,658, as against 799,161 in 1904. Nearly 60,000 specimens of milk have been examined, and more than 19,000 quarts of adulterated milk destroyed, a large increase over any previous year. In the first six months of 1905 53,000 milk inspections were made, which is about 24,000 more than ever before in the same period. Nearly $10,000 in fines has been collected for the violation of Section 53 of the Sanitary Code, which relates to the adulteration of milk. This amount represents four times more in fines than was ever before collected. Special attention has been paid to the sources of the milk supply, and inspections have been made over all the large railroads which transport milk. The creameries situated along these roads have been thoroughly examined, and owners and operators have been informed of the changes required by this department to permit the sale of their milk in the city of New York. More than 4,000,000 pounds of fruit, 7,500,000 pounds of food and 1,000,000 pounds of meat and fish have been condemned and destroyed, 8,000,000 pounds more than ever before condemned in the same period. Special efforts, the report says, have been made in the Bronx and Richmond to care for the water supply and drainage, and progress has been made in connecting premises with sewers, in filling in wells and cesspools, and in draining open lots. There has been a diminution in the number of cases of contagious diseases reported, 17,456 being recorded, against 19,114 for the corresponding period of the previous year. On March 29 a new procedure was introduced in the system of medical school inspection. Previous work had shown such extensive prevalence of contagious diseases of the eye and skin and defects of vision that it was determined to make a general physical examination of the pupils in several large schools, to ascertain what and how numerous were the morbid conditions among school children, which were likely to affect their future general health and usefulness. This examination was directed especially to the determination of defects of vision, hearing and of the locomotive apparatus, etc., and the presence of disease of the heart, lung, or nervous system. This examination was made in the case of each child in addition to the examination for contagious disease of the eye and skin and the general contagious diseases. In the two months while this inspection was in progress 17,825 children were examined. Of this number more than 48 per cent. were found to be in such condition as to require medical attention. To confirm the results of this work a second inspection was made by specially detailed men, which gave a slightly higher percentage than the first inspections. These inspections were largely in the primary department, where such conditions are most remediable and have the most important influence in the physical and mental development of the child. While the cases of contagious diseases have been fewer, the number of visits to the schools, tenement houses, private houses, etc., have been almost as many as in 1904, the total number being 197,042, as against 203,814 during all of last year. The registration and sanitary supervision of pulmonary tuberculosis is in a far more satisfactory state than ever before. The number of beds in the institutions of the city available for cases of this disease has been increased. Close relations have been established with the New York State Hospital for incipient tuberculosis at Ray Brook. The work of the Clinic for Tuberculosis has progressed satisfactorily. Cerebrospinal meningitis, the report says, again became prevalent in the winter months of 1905, and a special commission was appointed to take up the consideration of this disease. Investigations led to important results, showing conclusively that this was a communicable disease, and making evident the means by which its prevention could be rendered possible. On April 8, 1905, cerebrospinal meningitis was declared to be a communicable disease, and since that date isolation of cases, disinfection of rooms, and all other necessary sanitary precautions have been taken with each case, as with other communicable diseases. The results of the commission's investigation emphasized the importance of the prevention of expectoration in public places. Dr. Darlington's report closes with the announcement that there has been an increase in births and marriages and a decrease in deaths. There were 50,943 births, 20,768 marriages and 37,969 deaths.

PHILADELPHIA.

Inmates of Station House Fear Typhoid.—The officers of the Haddington Station are in constant danger of being infected with typhoid, owing to the presence of stagnant water in the cellar of the building. The drains connected with the sewer have been clogged for six weeks; the odor about the place is pronounced unbearable.

To Aid Hospitals.—On November 23, 24 and 25 a fair will be held at the Horticulture Hall by the ladies constituting the Board of Visitors of the University of Pennsylvania Hospitals. The fair will be open from 2 o'clock in the afternoon until 10 o'clock in the evening. The carnivals held recently at Twelfth and Rush streets will enrich the Samaritan Hospital.

Medical Schools Begin Another Collegiate Year.—The principal address at the opening exercise of the Medical Department of University of Pennsylvania was made by Dr. Alfred Stengel. Several changes in the teaching staff were announced. Dr. Ewing Taylor was elected associate in anatomy; Dr. Henry L. Beates, assistant in physiology, and Dr. Rufus B. Scarlett, voluntary assistant demonstrator in pathology. The following handed in their resignations: Dr. Adolph W. Miller, assistant professor in materia medica; Dr. Robert Formad, demonstrator in normal histology; Dr. John M. Swan,

demonstrator and student's physician; Dr. George P. La Rogue, assistant instructor in surgery; Dr. Samuel McClary, assistant demonstrator in normal histology. At Jefferson Medical College, the opening address was delivered by the Hon. William Potter. Dr. E. M. Howard opened the exercises at the Hahnemann Medical College by an address. At the Medico-Chirurgical College Judge Beitler presided and Dr. J. M. Anders delivered the address. Dr. Clara Marshall, dean of the faculty, delivered the opening address at the Women's Medical College. At this institution Dr. Alice Wells Tallents, a graduate of Johns Hopkins, succeeds Dr. Edith Cadwallader who has tendered her resignation.

Meeting of the Pennsylvania State Medical Society.—The members of this society were well entertained by the International Correspondence School of Scranton. Refreshments were served. At the State Hospital Dr. E. E. Montgomery performed two difficult abdominal operations and Dr. S. D. Risley conducted an ear operation; Dr. William C. Posey did an operation for squint at the Moses Taylor Hospital. At the final session the newly elected President, Dr. M. B. Hartzell, of Philadelphia, announced the committees as follows: Scientific Work—Dr. Theodore Appel, Lancaster. Public Policy and Legislation—Dr. Roland G. Curtin, Philadelphia; Henry Beates, Jr., Philadelphia; Ewing W. Day, Pittsburg. Archives—A. O. J. Kelly, Philadelphia; Francis M. Perkins, Philadelphia; Cyrus Lee Stevens, Athens. Teaching of Physiology and Hygiene in Public Schools—Edward Stieren, Pittsburg; D. H. Bergy, Philadelphia; H. A. Hare, Philadelphia; Frederick A. Rhodes, Pittsburg. Transportation and Place of Meeting—A. M. Eaton, Philadelphia; Charles A. Codman, Philadelphia; A. F. Myers, Blooming Glen; W. K. T. Sahm, Pittsburg; H. E. Zerner, New Castle. Malpractice—John B. Donaldson, Canonsburg; J. W. Ellenberger, Harrisburg; W. M. Findley, Altoona Orations—Medicine, D. W. Jeffries, Chester; Surgery, Otto C. Gaub, Pittsburg; Gynecology, Frank F. Simpson, Pittsburg; State Medicine, Samuel G. Dixon, Ardmore; Neurology, Theodore H. Weisenburg, Philadelphia; Laryngology, Ira J. Dunn, Erie. Officers of Sections—Medicine, Lawrence Litchfield, Pittsburg, chairman; James H. McKee, Philadelphia, secretary. Surgery, W. L. Estes, South Bethlehem, chairman; John H. Jopson, Philadelphia, secretary. Specialties, Samuel D. Risley, Philadelphia, chairman; Robert Milligan, Pittsburg, secretary. Committee on Credentials—Alexander R. Craig, Columbia; C. W. Coulter, Oil City; James F. Elder, New Bridgeton.

CHICAGO.

Banquet to Dr. Senn.—On November 11 the medical profession of this city will tender a banquet to Dr. Nicholas Senn. The committee of arrangements is composed of the following men: Drs. Wm. A. Epans, Frank Billings, John B. Murphy, Wm. L. Baum and David J. Doherty.

New Hospital for Evanston.—A maternity hospital, adjoining the Evanston Hospital, is to be built as a memorial for the late Mrs. Elizabeth Williams, whose six children have contributed $25,000 to the building fund. Mrs. Annie Locke will be in charge of the hospital.

Opening of Northwestern University.—Indications point to a larger enrolment in all departments of this university than last year. The department of chemistry has been enlarged, and Walter Libbey has been appointed professor, with Theodore Whittlesey, transferred from the School of Pharmacy, as assistant.

Oak Park (Illinois) Hospital Site.—The Oak Park Hospital Association is determined that the villege shall have a hospital to cost from $100,000 to $150,000, although a majority of the people there voted against it at the last election. Dr. J. W. Tope, at a meeting recently held, submitted a proposition to the executive committee of the hospital association to pay for the site selected for the institution. This consists of six acres in Fair Oaks, in the northern part of Oak Park. Dr. Tope's idea is to have a Catholic sisterhood take charge of the hospital, although that is not a condition of his gift. The sisterhood will build the hospital.

Examinations for County Hospital Staff.—The members of the consulting staff of Cook County Hospital met in joint session on September 19, with the Civil Service Commission of Cook County, to consider questions relating to the announced examination of candidates for the hospital staff. The examining board is as follows: Drs. C. S. Bacon, Frank Billings, D. R. Brower, H. H. Brown, Sanger Brown, T. J. Conley, A. C. Cowperthwaite, N. S. Davis, J. B. De Lee, Fernand Henrotin, F. C. Hotz, Stuart Johnstone, John B. Murphy, H. T. Patrick, C. E. Paddock, W. E. Quine, Edgar M. Reading, N. Senn, G. F. Shears, H. M. Starkey, D. A. K. Steele, J. H. Stowell, H. S. Tucker, C. S. Williams and C. A. Wood. Dr. Henrotin was elected Chairman of the Board, and Dr. J. B. De Lee, Secretary. An executive committee, which will later name the membership of the sub-boards for each of the twelve departments, was appointed, as follows: Dr. Wm. E. Quine, chairman; Drs. J. B. Murphy, H. T. Patrick, J. B. De Lee, C. A Wood, George F. Shears, E. M. Reading. Dr. Henrotin is a member of the committee *ex-officio*, and Dr. De Lee was elected Secretary.

CANADA.

Toronto Western Hospital, Toronto.—Scarcely ten years ago the Toronto Western Hospital began work in a small house with accommodation for less than ten patients. To-day it occupies a large building, accommodating about sixty patients, while in an annex just completed, in separate tents and in the main tents, there is an additional accommodation for fifty-five more. In addition two houses on an adjoining street have been secured and fitted up for a maternity hospital. The present grounds of the hospital now extend over 4½ acres, and options are held on adjoining lots. It has been planned that this fine site shall contain a group of hospital buildings of the most modern structure. The new annex just completed cost $10,000. Another annex is in contemplation for infectious diseases, and it is proposed to soon commence the erection of a nurses' home. Three years after the organization of the hospital it was incorporated by the legislature. The Board of Governors consists of six laymen and six practitioners, and is elected annually. The hospital receives public, semi-private and private patients. The hospital staff numbers forty physicians and surgeons. There is a training school for nurses, and the course covers three years. Most extensive use of the open-air treatment has been made in this institution, which was first adopted through lack of accommodation, and its success has led to a wide application of the system. The patients practically live outdoors during the day, the tents being open all

summer and quite comfortable during winter. This treatment has become an important feature of the Toronto Western Hospital methods. A number of bequests have recently been arranged for, totalling $50,000.

Personals and News Items.—Cerebrospinal meningitis has broken out again near Ottawa, Ont.

Winnipeg presents a good bill of health for September. If it were not for a few cases of typhoid fever, the city would be healthier than for years.

There were 123 deaths in Montreal during the week ending September 23, against 121 births during the same time.

Hamilton, Ont., will build a sanitarium for consumptives at a cost of $50,000, $20,000 of which has already been raised.

The new Maternity Hospital, Montreal, which is being erected at a cost of $125,000, will be open by October 15.

Dr. W. H. F. Addison, one of the house surgeons at Toronto General Hospital, has been appointed lecturer on histology at the University of Pennsylvania, and will commence his duties at once.

The death is announced of Dr. Louis J. A. Simard, oculist and aurist, of Quebec City.

Dr. C. K. Clarke, who is moving from Kingston to Toronto to become superintendent of the Toronto Provincial Hospital, received from the staff of the Kingston Provincial Hospital an address and a cabinet of silver.

The medical fraternity of Dawson, Yukon Territory, conferred with the Lieutenant-Governor on September 25 regarding the epidemic of dysentery in that city.

The death is announced of Dr. George Riddell, of Crystal City, Manitoba.

Dr. Victor C. Vaughan, of Ann Harbor, Mich., delivered the opening lecture of the Medical Faculty of Toronto University, on the evening of October 3.

Dr. Matthew D. Mann, of Buffalo, N. Y., delivered the opening address of the Toronto Medical Society on the evening of October 5.

The Toronto Clinical Society commenced the winter session on the evening of October 4, when Dr. Adam H. Wright delivered the annual presidential address.

Dr. J. Alex. Hutchison, of Montreal, chief surgeon of the Grand Trunk Railway, has been appointed chief surgeon of the Grand Trunk Pacific.

Dr. William Gardner, of Montreal, has been elected second vice-president of the College of Physicians and Surgeons of Quebec.

Dr. E. Pelletier, of Montreal, has gone to Paris to study tuberculosis and to attend the Congress on Tuberculosis as a representative from the Board of Health of Quebec.

GENERAL.

Dr. Nothnagel's Chair.—It is announced that Prof. von Jaksch, of Prague, has been called to Vienna to take Dr. Nothnagels' chair.

Dr. Osler Again in Harness.—Professor Osler, of Oxford, has accepted the post of Thomas Young Lecturer on Medicine at St. George's Hospital, and will give a series of lectures and demonstrations at the hospital next spring on the diagnosis of abdominal tumors.

Epidemic Cerebrospinal Meningitis in Germany.—The epidemic of cerebrospinal meningitis may now be looked upon as extinguished in Silesia. Since the disease first broke out, on November 19 of last year, in round numbers 2,950 persons were attacked and 1,600 died. In the whole of Prussia there were 3,250 cases and 1,750 deaths.

Thirtieth Annual Meeting of the American Academy of Medicine.—The thirtieth annual meeting of the American Academy of Medicine will be held at the Assembly Hall of the Northwestern University Building, corner of Lake and Dearborn Streets, Chicago, on Thursday and Friday, November 9 and 10, 1905. The following papers will be read: "The Physiology of Recreation," by G. W. McCaskey, of Fort Wayne, Ind.; "Recreation in Its Influence on the Nervous System," by W. J. Herdman, of Ann Arbor, Mich.; "The Ceremonial and Festa in the Organized Recreation of Larger Groups of Individuals," by Bayard Holmes, of Chicago; "The Relation of Recreation to Education," by Prof. Robert K. Row, Berwyn, Ill.; "Maturation and Senility," by A. L. Benedict, of Buffalo, N. Y.; "The Medical Features of the Papyrus Ebers," by Carl H. von Klein, of Chicago.

The Journal of Biological Chemistry.—This month there will be issued the first number of *The Journal of Biological Chemistry*, a journal designed for the publication of original investigations of a chemical nature in the biological sciences, whether concerned with the phenomena of animal or of vegetable life. Without rigidly defining the scope of the journal, it may be stated that its pages will be open: First—To workers in zoology and botany and the branches of knowledge in which these sciences are applied, for such of their researches as are of a chemical or physico-chemical nature; second—To workers on the chemical side of the experimental medical sciences, as physiology, pathology, pharmacology, hygiene, physiological chemistry and bacteriology; third—To those who are engaged in any branch of clinical medicine, when their researches are of a chemical nature; fourth—To the specialist in organic chemistry, who will find here a fitting place for the publication of researches which have biological or medical interest. The growing importance of chemical research in the elucidation of general biological and medical problems, and also the increasing activity of American investigation in this field, point to the need of a journal of the character here outlined. At present there is no periodical in the English language that meets the requirements of the biological chemist. With the hearty cooperation of American investigators the editors feel confident that the new journal will prove truly representative of the best work in biological chemistry. Contributors will be allowed prior publication of announcements or abstracts in other journals. Every legitimate effort will be made to bring the journal to the notice of foreign readers and workers. At least six numbers of *The Journal of Biological Chemistry* will be issued yearly and will constitute a volume, each volume to contain between five and six hundred pages.

Luxury of Hospitals.—Luxurious hospitals and the too lavish use of the surgeon's knife were the topics discussed by Sir Henry C. Burdett, K.C.B., of London, last week, at the opening session of the seventh conference of hospital superintendents held in Hotel Vendome, Boston. Dr. D. W. Cheever delivered an address of welcome, speaking for 2,500 physicians of Massachusetts. The Rev. Edward Everett Hale also spoke. He commended the efficiency of the Massachusetts General Hospital and the Boston City Hospital, urging also the value of home neighborhood hospitals. Dr.

Henry M. Hurd suggested some of the problems in which hospital superintendents are interested. Among them were the question whether hospitals should be carried on for the benefit of the sick, or for the medical profession and for the training of nurses. The president of the association, Dr. George H. M. Rowe, briefly reviewed the history of the association, whose principle was cooperative, democratic and beneficial. The modern hospital, he said, should be more than a comfortable home—it should be well equipped. The cost of the care of patients would be less in branch than at the chief hospitals. The hospital is a school for the medical student and should have every advantage. Sir Henry C. Burdett said it was twenty-five years ago when he first visited the United States and saw the first American hospital in the city of Boston. He said it was a great thing that in the United States there is now an association of hospital superintendents. For things are not satisfactory in the hospitals. "The sooner, in my opinion," said the doctor, "the medical profession fairly and squarely recognizes that it is wrong to bring up their students with the idea that you cannot perform an operation unless it is in a marble hall costing some $50,000, the better it will be for the future of science and the care and treatment of the whole body of the population. I don't believe there is any justification whatever for this excessive expenditure on operation tables, and I am glad to see that this view is growing in the minds of some of the leaders of surgery. What we want is surgeons who, with wisdom to be conservative, have the courage to protest against the growing tendency to put a knife into everybody on the smallest possible pretext. The hospitals to-day are being diverted improperly from the object they were established to attain—the relief and care of the sick and of those who cannot otherwise afford to provide that care. They are nowadays utilized not only for the poor, but also increasingly for the better classes, to the exclusion of the poor. Now, the poor patient must become the first consideration of the managers and trustees and superintendents of our great public hospitals. It is as possible to have here a uniform system of accounts as it has been found in England and some of the colonies. You now treat free and paying patients very often in the same ward and very often in the same building. What requires to be done is this: You must have your free hospital patients in a separate building. All patients who can pay for their treatment and maintenance, or can pay a larger sum than the actual cost, should be treated in a separate building." The afternoon was spent by the superintendents in discussing questions of the construction and arrangement of hospitals, the speakers being Architects Edmund M. Wheelwright and Bertrand E. Taylor, of Boston, and Dr. A. J. Ochsner, of Chicago. In several of the addresses emphasis was laid on the importance of unit furniture and accessories as a precaution against dust. There was also an address on the standardizing of hospital construction and equipment. The discussion was by Dr. Renwick R. Ross, Dr. Henry M. Hurd, of Baltimore; Sir Henry C. Burdett, of England; Dr. Fisher, of New York, and Dr. Armstrong, of Boston. In regard to the standardizing of hospitals, several speakers urged that this was impossible, owing to the different aims of hospitals as well as to the different sums that could be expended on them.

First International Congress of Anatomists.—The first meeting of the Congrès fédératif international d'Anatomie was held in Geneva, and commenced on the morning of Sunday, August 6, by the opening of an exhibition of specimens and appliances illustrating recent progress in anatomy. The congress closed on the evening of Thursday, August 10, when three hundred members and adherents of the congress were entertained by the city of Geneva at an official banquet. The congress represented a conjoint meeting of the five leading anatomical societies—the Anatomical Society of Great Britain and Ireland, Anatomische Gesellschaft, Association des Anatomistes, Association of American Anatomists and the Unione Zoologica Italiana. Almost every country was represented. Switzerland itself contributed more than 100 members, France 66, Germany and Austria 36, Great Britain and Colonies 23, Italy 11, America 3, and other countries 16. The largest contributors to the proceedings of the congress, however, were the Germans; out of a total of 117 communications, 32 were made by them, 31 by the French, 18 by the British, 15 by the Swiss, 8 by Italians, 5 by Swedes, and 2 by Americans.

From every point of view the congress was a success. Anatomy is peculiarly susceptible of international treatment, the subjects for description and discussion being concrete and capable of direct demonstration. The language difficulty certainly hindered a free discussion on more than one occasion; for instance, on the second day, a speaker, after giving his communication in French, listened most attentively to a vigorous criticism in German, and, bowing profoundly, replied, "Je ne comprend pas l'allemand." With an agenda list overloaded with 117 communications, there was a grave risk of disorganization. Thanks to the complete arrangements made by the committee of organization, presided over by Professor A. Eternod, of Geneva, and to the perfect arrangement of business by the president of the secrétariat, Professor von Bardeleben, the proceedings of the congress made an even and steady progress. The success of the congress must also be ascribed to Professor Nicholas, of Nancy, secretary of the French society; English members were indebted to Professor Symington, president of the British society, and to Dr. Christopher Addison, its secretary. Each day's work was divided into two parts: the morning was devoted to papers, ten minutes being allowed for each communication, and three minutes to any member who wished to criticize; the afternoon was set aside for exhibition of new specimens and demonstrations of the material on which the communications of the morning were based, and this was by far the most instructive and profitable part of the day's work. The Swiss cow-bell employed by the president of each day's proceedings (for the president of each society acted in turn as chairman) to warn the speaker that he had reached the limit of his allotted time, bound the members of the congress by a common sense of humor and materially aided the success of the meeting. In spite of the *entente cordiale*, the British anatomists associated more closely with the German than with the French members of the congress—an association determined, for the greater part, by the fact that the Germans were the superior linguists.

The members of the congress took part in the dedication of a monument to the memory of Professor Hermann Fol, who set sail from Havre in his yacht, *l'Aster*, in the spring of 1892 to investigate the fauna of the Mediterranean. From the day he sailed until now not a single trace has been discovered of ship or crew. The members of the congress were

lavishly entertained by Madame Fol. The congress placed a wreath on the bust of the Swiss physiologist Servetus, who discovered the pulmonary circulation in the sixteenth century, and was burned at the stake by Calvin because, so it is said, he denied the existence of the Trinity. A wreath was placed by the British section of the congress on the spot where he was burned, this gracious act being prompted by Professor Dixon, of Trinity College, Dublin.

The congress was a social as well as a scientific success. An invitation from American anatomists to meet at Boston in 1907 was declined, as it was felt that at least a space of five years should intervene beween each congress. A permanent committee for the organization of the next congress was formed by the nomination of five men, one from each of the five affiliated societies. It is intended to bring out a bulletin containing the proceedings and transactions of the congress, to which purpose part of the sum (11,000 francs), raised by subscription in Geneva to meet the expenses of the congress, will be devoted. When it becomes the turn of London to entertain this congress, it will not be found an easy matter to attain the standard of hospitality which has been set by Geneva.—*Science.*

American Science through German Eyes.—One of the foreign delegates to the International Congress of Arts and Science held in connection with last year's exposition at St. Louis has just been giving his countrymen his impression of our position and progress in science and his ideas of the relations that should obtain between scientific men here and abroad. This delegate, Professsor Waldeyer, of Berlin University, has had, we are told by Lewellys F. Barker in an article contributed to *Science* (New York, September 8), "more than most foreigners, opportunities for familiarizing himself with American science and American thought," having visited this country several times, being familiar with our literature and knowing us "by personal observation, by correspondence, by reading, and by multiple contact with educated Americans." Waldeyer's impressions were given in an address before the Royal Prussian Academy of Sciences, which is summarized and discussed in Mr. Barker's article. Says the writer: "Waldeyer admits that in Germany the false opinion that the American turns predominantly toward material interests and that he has but little inclination for purely scientific things is still widespread. Those who hold it, he says, forget America's great universities—Harvard, nearly 300 years old, with its 5,000 students per year; Yale, more than 200 years old; Princeton, Brown, the University of Pennsylvania, contemporaneous in foundation with Göttingen; Columbia, established seven decades ago; and young institutions, like Johns Hopkins, Cornell, the University of Chicago, and the University of California, already grown to powerful positions in the country. If Germany bore in mind the great public libraries which exist in America, with their magnificent equipment, their easy access and their prodigious use by all classes, including the working people, such a wrong impression could not prevail. The American's recognition of the fact that culture brings freedom with it, and his realization that, in a country where every one has the choice of sinking or swimming, a good education is a necessity for him who will hold himself above water in the fierce struggle, have led to the expenditure of great sums for public schools, for advanced education of all sorts, for museums, collections, laboratories and the like, with results as good or better than those attained in Germany. Waldeyer, impressed with American progress in this regard formerly, confesses himself surprised at the advances made in the last decade. They surpass, he says, all expectations. One needs no special prophetic gift to predict that in fifty years the United States will, as regards good arrangement, ease of use and wealth of what is offered, far outdo Germany."

But what have we done with these opportunities? Before answering this question Professor Waldeyer reminds his hearers that climatic influences bear a large part in mental development and that over wide areas these are the same in the United States and in Europe. Says Mr. Barker: "The type of man is the same, indeed the whole of Europe has sent, in large part, of its best to contribute to the population of the United States. The means of culture are the same; in many respects America has the advantage, especially as regards ease of use and multiplicity of institutions. There can be no doubt, then, that in America effective men and women must develop in all spheres."

That we have so developed Professor Waldeyer thinks cannot be denied. He enumerates and praises our scientific institutions one by one, and finally, dwelling particularly on our advance in the biological sciences, of which, as his own specialty, he is best able to judge, he says: "I find that over there they stand equal to us in all essential points—in the kind and method of scientific work, in the value of the same, in the equipment and arrangement of laboratories, in materials for instruction and in the form and mode of imparting knowledge. Visit the great workshop of Alexander Agassiz in Cambridge; the anatomical institutes of Huntington in New York, at Columbia University, and of Mall in Baltimore; the Peabody Museum, so brilliantly filled by Marsh, of Yale; the anthropological museum in New York, etc., and you will say that I am right. J. Orth has recently made a similar statement. In a few years the new buildings of the medical school at Harvard will be ready; . . . it may be prophesied that in them we shall have the best to be seen anywhere."

But in the making of great scientific discoveries and the formation of theories which have opened up new domains of knowledge Europe is still, Waldeyer declares, ahead of America. Mr. Barker quotes him as saying: "To Europe belongs the credit of a surprisingly large number of new chemical elements, spectral analysis, and, with it, astrophysics, the great discoveries in the chemistry of dyes and sugars, the physical chemistry of solutions, the liquefaction and condensation of gases, especially liquid air, the Roentgen and Becquerel rays, radium and its rays, color-photography, the dynamo-machine, electric light, indeed most of the investigations and applications of electricity as a source of power, the electric furnace and its fruitful application; in the field of biology almost the whole doctrines of the protozoa and bacteria with their explanations of epidemics, the toxins and antitoxins, the working-out of the doctrine of immunity, the discovery of the finer processes of fertilization and of karyokinesis, the doctrine of descent and Darwinism, and, above all, crowning all, the conception and foundation of the great idea of the conservation of energy. These he lists as the discoveries and theories of European investigators during the past fifty years; many of them belong to the immediate past. It would be possible to enumerate a series of men and researches in the domain of the historical and philosophical sciences also, which would easily demonstrate that, in them, too, the main weight of achievement still rests in Europe." Professor Waldeyer is an earnest believer in the exchange of both teachers and students between Germany and

America. It would do no harm, he thinks, if every year a number of German students came to America to widen their horizon. In this and in other matters Germans should act toward America, he believes, as Americans do toward Germany; they should try to form a correct judgment of the scientific work of Americans by personal knowledge, and instruct themselves by visiting the country itself. That this course would tend to widen German culture he is certain, and he urges that this scientific intercourse between person and person, university and university, academy and academy should be favored in every way possible. He concludes: "Let us be as liberal to them as they are toward us in the reception of those who seek knowledge, in offering to them all that they need. Let their published researches be found in our libraries also, at least in the great Royal Library of the capital of the empire. Let us show them in all things that on coming to Germany they come to a people of intellectual affinity, under whose political and social institutions even they, with their free views, may have a feeling of well-being. That they do the same for us can be said, to their praise, by all who have been their guests."

OBITUARY.

Dr. Wilson T. Bassett died at his home in Cooperstown, N. Y., last week, aged eighty-four years. He was a graduate of Albany Medical College, class of 1844.

Dr. William P. Tonry, who was widely known as a chemist and toxicologist, died last Wednesday in Baltimore. He was sixty-five years old. Professor Tonry had given expert testimony in more than forty trials for murder and in over a hundred other cases in which testimony relating to chemistry figured prominently. His wife, who died about a year ago, was the daughter of the Mrs. Surratt, who was executed for complicity in the assassination of President Lincoln.

Dr. Alonso C. Buck, a veteran of the Civil War, and for more than forty years connected with the War Department, died at his home in Hyattsville, Md., last week, in the eightieth year of his age. He was born in Glens Falls, N. Y., went to Wisconsin while a youth, studied medicine in Chicago and was practising there when the Civil War broke out. He enlisted in a Wisconsin regiment which formed part of the noted Iron Brigade, was subsequently transferred to the Hospital Corps, in which he served until the close of hostilities. He was then appointed a clerk in the office of the Surgeon General of the Army, reaching the grade of chief of division.

Dr. Henry Dorwin Didama, of Syracuse, N.Y., dean emeritus of the Syracuse University medical college and one of the most widely known physicians in the State, died on October 4, at the age of eighty-two years. Several months ago he fell and fractured his femur from which he never recovered. Dr. Didama was dean of the medical college up to last June, when he was relieved from active duty and made dean emeritus. He was one of the organizers of the New York State Medical Society and was once its president. He belonged to the Syracuse Academy of Medicine, the American Medical Association and many other medical organizations. He was also widely known as a writer. Dr. Didama was born at Perryville, Madison County, June 17, 1823. His ancestors came from Holland, and his father was also a prominent physician in New Jersey. He graduated from the Albany Medical College with the class of 1846. Dr. Didama was noted for his ideas on temperance, refusing to prescribe alcohol in any form. He even refused to treat persons who used either liquor or tobacco.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE MEDICAL SOCIETY.

Fifty-fifth Annual Meeting, held at Scranton, Pa., September 26, 27 and 28, 1905.

First Day—September 26th.

Address in Surgery.—This was delivered by Dr. Jonathan M. Wainwright. To satisfy his suspicion that ether administered to an animal already suffering with shock gave rise to a fall in blood pressure, he performed a series of experiments on dogs, showing how the blood pressure would fall soon after the drug was administered. He found that a dog could be killed almost instantaneously by putting a few drops of ether in his trachea during the operation. He reviewed the literature of spinal anesthesia, consulting about 625 references, and found that 16,000 cases of spinal analgesia have been reported, many of which were in this country; of the 16,000 reported cases 11 died. He subjected a series of dogs to spinal analgesia and then etherized them and found that the blood pressure remained nearly stationary, barring, of course, the slight fall when the ether was first given. In another series of experiments he subjected isolated parts of dogs to certain degrees of heat under ether, but the blood pressure fell almost at once; if, however, the ether was preceded by the injection of cocaine into the spinal canal the blood pressure varied very little. He then subjected the extremities of dogs to the action of boiling water, then gave the spinal analgesia, and finally etherization, after which procedure the blood pressure either remained as it was before the operation or increased. In another series he crushed the extremities and then amputated the limbs. With ether alone the blood pressure did not remain high long, but in those cases where the ether was preceded by the spinal analgesia the blood pressure did not vary a great deal, and the animals remained alive. He cited several cases upon which he operated by cocainizing the spinal cord before giving the ether; some of these patients were above sixty years old, and they appeared to be in a better condition after the operation was completed than they were soon after the ether was first given. From his experiments he concludes that ether increases the already existing shock; that by means of cocainizing the spinal cord before the ether is given the patient is stimulated rather than depressed. He holds that spinal analgesia should not be used where the same operation can be done under a local anesthetic.

Results of the Surgical Treatment in Exophthalmic Goiter.—This was the title of the paper read by Dr. B. Farquhar Curtis, of New York City. Of the two operations which have recently sprung into favor for the amelioration of goiter, namely, partial thyroidectomy and removal of the cervical sympathetic ganglion, he prefers the first because it is more simple and the scars resulting from the operation are not so conspicuous. He cited a case treated surgically in whom the goiter returned some time after the operation, the patient dying from an acute endocarditis. Six of the patients that died had albuminuria after the operation, but not before, while one patient who recovered had albuminuria before the operation. Many of the patients who die suffer with acute thyroidism; if an attack is pending, Dr. Curtis says, surgical intervention should not be carried out. He stated that the cause of this condition is not known, but in all probability it is either of nervous origin or is due to the absorption of parts of the wounded gland or of its secretions. To do a partial thyroidectomy a general anesthetic must not be

employed, as such a procedure may induce acute thyroidism; the operation should be done under cocaine used locally. In some cases he ligates the artery, and this is done under a local anesthetic. Patients who were subjected to partial thyroidectomy were relieved of the distressing symptoms of the disease; the exophthalmus was lessened; the eyelids could be closed; the remaining gland decreased in size; the tremor and the other nervous symptoms were lessened. Of 136 cases, 17 died of acute thyroidism; the survivors of the operation are cured of the symptoms, but relapses occasionally occur.

In the discussion of this paper, Dr. R. G. LeConte, of Philadelphia, maintained that since the mortality of the operation upon this condition is but 12 per cent., the surgical intervention is justifiable. The greatest danger is acute thyroidism; if this condition should be due to the absorption of products of the gland the production of a perithyroid fibrosis by means of the X-ray may mitigate such absorption. He uses drainage in these cases for the same purpose. He does not look favorably upon removal of the cervical sympathetic ganglion for the relief of the condition.

Diagnosis of Pneumonia and Empyema in Children.—Paper read by Dr. Alfred Hand, of Philadelphia. In this paper he took the ground that small or even larges areas of consolidation gave bronchial breathing and increased bronchial resonance, while the percussion note and auscultation show nothing; sometimes all the physical signs are negative, and the diagnosis must rest on the presence of the fever, the increased frequency of the pulse rate and respirations above 40 per minute. The presence of a leucocytosis will serve to aid in differentiating it from typhoid fever, while it may be necessary to do lumbar puncture in order to differentiate the pneumonia from tuberculous meningitis. The diagnosis in such cases, he said, is confirmed by the critical fall of the temperature, after which or even later the physical signs become evident. He mentioned the fact that empyema must be borne in mind. Important factors in recognizing this condition are the bleaking character of the voice-sounds over the base of the lungs, with bronchial breathing audible but distant, and percussion gives a flat rather than a dull note, while over the upper lobe there is bronchial breathing and exaggerated vocal resonance. In compiling 200 cases of pneumonia he was able to make the following deductions: Fifty per cent. of the pneumonias were right-sided, 30 per cent. left-sided; 14 per cent. were bilateral; 4 per cent. of the cases developed empyema; 49 per cent. ended by crisis; 39.5 per cent. by lysis, and 10 per cent. of the cases were fatal.

In opening the discussion of this paper, Dr. J. P. C. Griffith, of Philadelphia, also took the ground that auscultation and percussion are of minor importance, as compared with the information obtainable from the expression of the child's face and its general appearance. Dr. J. H. McKee, of Philadelphia, noted that in all cases of pneumonia empyema must be watched for. He spoke of the practice of auscultation and percussion, and said that sometimes a normal chest and lung will give a cracked-pot sound with the pleximeter; if percussion is performed lightly this can be avoided.

Focal Diagnosis of Operable Tumors of the Cerebrum.—Dr. Charles K. Mills, of Philadelphia, read this paper. He said that to within a very short time the operation upon lesion in the cerebrum have been a failure rather than a success is perhaps due to three factors, namely, imperfect localization, smallness of the opening in the cranium and imperfect technic. He holds that the motor region, contrary to the views and the teachings of the years just passed, is all or nearly all situated in front of the central fissure and its area is more limited than has been generally held. In the gray matter back of the central fissure sensory perception or perhaps some of the special senses are situated. He contends that tumors in this region have a tendency to begin in the core of some physiological area, which, he states, are six in number, the four most important of which are prefontal, motor, midfrontal and parietal. In regard to the size of the opening in the cranium for the purpose of removing a tumor he maintains that it should be not less than three inches and not more than four. Mistakes as to the diagnosis may be due to the fact that in the majority of instances the symptoms present at the time the physician sees the patient are alone considered, while those which were present at the time the tumor began are utterly disregarded. Poor result of operative procedures may be attributable to the fact that the patients are seen too late or that sometimes the nervous system is an expression of some other lesion. Both instances are illustrated in Jacksonian epilepsy, which disease often becomes widespread before he applies for treatment; then, too, it may be a symptom of some other disease, such as uremia. Paralysis of the external rectus of the eye is a very important factor, as it not only indicates the involvement of the nerve itself but even without this involvement paralysis may be a manifestation of the presence of a neoplasm in the immediate neighborhood.

Surgery in Relation to Operable Lesions of the Cerebrum.—This paper was read by Dr. Charles H. Frazier, of Philadelphia. He attributes the failure in this field of surgery to the fact that the lesions are not seen early enough, as for instance in Jacksonian epilepsy the convulsions have become more or less general. Adhesions are also a drawback and he found it impossible to prevent them from forming with the introduction of silver foil. The infantile and the juvenile hemorrhages have been very successfully treated surgically, if the cases are seen early. This form of hemorrhage may be due to thrombosis of an artery; the hematoma resulting from the hemorrhage is encapsulated and then becomes encysted and finally paralysis and convulsions ensue. He cited two cases of this condition, the one was seen about a month after the hemorrhage and the other a considerable time after its occurrence. In the first case good results were obtained, while in the second the condition is not much improved. Since evidences of improvement under iodides are sometimes present the therapeutic treatment is occasionally kept up until it is too late to operate. In many cases of disease of the cerebrum palliative operations are justifiable in that they give relief to symptoms accompanying incurable conditions. Very often choked disk is prevented by making an opening on each side of the cranium.

Second Day—September 27th.

Deductions from the Experimentations Tending to Determine the Cause of Cancer.—Paper read by Dr. H. R. Gaylord, of Buffalo, N. Y. He said it was his firm belief that there is an analogy between the agent giving rise to cancer and the agent which is responsible for smallpox. He has seen many instances which clearly establish in his mind that the infectivity of this disease can no longer be doubted. He pointed out that in the experiments instituted it has been noted that cancer very frequently is seen in the breast of the female mice. He cited Orth who holds that the propagation of cancer is not carried from a tumor cell to

an epithelial. He declares that transplantations of tumors throw no light upon the cause of the spontaneous development of the primary tumors. It has, he believes, been repeatedly shown that the successive transplantation increases the virulence of the neoplasm and that the power of a cancer cell to proliferate is unlimited. He spoke of a case of adenocarcinoma becoming a spindle-cell sarcoma; this, he believes, is due to the fact that the irritant which stimulated the epithelium to the production of cancer now spent its force on the connective tissue of the tumor. By transplantation of tumors into mice adenocarcinoma have developed in their lungs—an organ that is rarely affected except by transplantation. It has been found that some of the offspring from mice suffering with carcinoma cannot be infected with the same growth. This fact seems to demonstrate that in some animals there exists an immunity to cancer. He has found that 21 per cent. of tumors transplanted killed the mice inoculated. There is no doubt in Dr. Gaylord's mind that a spontaneous retrogression of the tumors occurs and this cure may be due to an acquired immunity. It has been shown that if mice are treated with the serum of the blood of those mice suffering with carcinoma, it is much harder to infect the mice so treated; then, too, it has been found that if mice suffering with such neoplasms be treated with an immune serum the tumor will cease growing and will diminish in size. When mice so treated are bled the neoplasm at once begins to develop again; a resumption of the growth will follow hemorrhage in the animals if the tumor is undergoing retrogressive changes as a sequence to the treatment by the X-ray or radium. He has found the histological picture of a cancer undergoing retrogressive changes and one successfully treated by the X-ray or by radium to be identical. His inclination is strong toward the belief that the agent which produces cancer is a living factor.

Three Cases of Meningocele that Recovered.—Paper read by Dr. G. W. Guthrie, of Wilkesbarre. Two of these cases were spinal and one was in the occipital region. His first case healed spontaneously; it was first seen by him when the child was three weeks old and again when it was three months old. At that time the tumor was tense, translucent and fluctuating. He advised operation in the course of a very short time, but the patient was not brought back until it was two years old, when he found the tumor firm, but neither translucent nor fluctuating. The second case he saw when the child was four months old. The tumor was then tense, translucent, fluctuating and sessile. He saw the patient two years later and found that the tumor had increased in size; it was still tense, translucent, fluctuating and sessile. Upon this case he operated and found the contents of the sac were composed of a clear fluid and a few fibers which he took to be nerve filaments, but histological examination showed that they were fibrous tissue. The sac communicated with the spinal canal. The patient made a good recovery. The third case he saw when the child was five months old. The tumor was in the occipital region; it was large, fluctuating, translucent and sessile. He saw the patient a month later and found that the growth had increased in size. He operated and found the contents were fluid only. After the operation the head became rounded and the patient recovered. In discussing this paper, W. L. Estes, of South Bethlehem, called attention to the fact that when the meningocele is situated in the lumbar region the results from operation are not so gratifying. He is inclined to believe that this is due to the increased amount of pressure in the area.

The Conservative Treatment of Hypertrophied Prostate.—Paper read by Dr. H. M. Christian, of Philadelphia. He took exception to the statement made by a prominent physician that prostatectomy should now be classed with the operations of minor surgery. He gave the statistics of Whitesides, and quoted from this author quite extensively. Much of his paper is based upon the deductions of these statistics. He spoke principally of two classes of cases: (1) Those in whom health is good, the urine is either sterile or slightly infected, and in whom there is a small amount of residual urine. (2) Those in whom the health is fair and in whom there is considerable residual urine or more complete retention. He has four cases who have led a catheter life for ten years. In the first group of cases the conservative method should be tried at least, as he believes that prostatectomy is no simple matter. He advocates operation, however, when there is complete retention and when the catheter cannot be used easily. In order that the catheter life may be carried out it is necessary to put in the hands of the patient the proper catheter and that he be taught how to use it correctly. Christian prefers a soft rubber catheter with either a single or double elbow. The patient should never be allowed to use a metal instrument. To sterilize the catheter, he advises washing in soap and water and forcing the water through the instrument; then he boils the catheter for ten minutes. The hands of the patient and the glans penis should be washed with bichloride before the catheter is passed.

In opening the discussion on this paper, Dr. Gaylord, of Buffalo, took the ground that with the use of the catheter it is impossible to prevent infection of the bladder. He holds that the high mortality rate is due to infection of the kidneys. Then, too, since the laceration of the perineum is less, the mortality will be correspondingly diminished. As to the preferred operation upon this gland, he says, although with the suprapubic method the middle lobe can be reached more easily, and although injury to the urethra is less, he still prefers the perineal route. He inclines to the view that if the patients are seen earlier the statistics will change. Dr. Gibbons, of New York, declared that prostatectomy is the rule now rather than the exception, and holds that this is a comparatively simple operative procedure, because the prostate can easily be drawn down to the skin margin, regardless of the size of the organ, and can be held there by pressure from the hand above the symphysis while it is enucleated. The operation can be done under cocaine. Rodman, of Philadelphia, holds that there are cases that can be treated with the conservative method. The operation should be done early. He holds that prostatectomy can endure perfecting. Rodman is a strong advocate of Hunter McGuire's operation in the relieves of the conditions incident to hypertrophy of the prostate; with this operation the mortality is but two per cent. He has lost but one case, and that accident was due to a hypodermic of morphine given some time after the operation. He has modified McGuire's operation by introducing into the urethra a trocar and canula until a fistula forms. Enlarged prostates which are allowed to remain may undergo carcinomatous transformation. J. S. Niles, of Carbondale, maintains that of the two dangers incident to hypertrophy of the prostate, namely, operation and the possibility of infection of the bladder, he prefers the first.

Fractures of the Head of the Radius.—Read by Dr. T. T. Thomas, of Philadelphia. He accounts for the infrequency with which these fractures occur to the fact that they are not recognized, so that they really do

occur, but are not brought to light. In the records of four of the men who do work with the X-ray he has found more fractures of the head of the radius than he was able to collect from the literature. Of the 42 cases of fracture of the head of the radius collected, only six were recognized during life. The fractures in a large majority of instances is due to a fall on the hand. While Thomas regards the X-ray as a valuable aid in making the diagnosis of the lesion under consideration, he maintains that the diagnosis can be made without this instrument. The most important factors entering into the symptom-complex by which the lesion is recognized are pain and loss of function. The pain is very acute. While there may be some disturbance in flexion and extension, pronation and supination suffer greatly; in most instances the rotatory movement is lost entirely. He announced that the majority of the surgeons advocate incision and direct fixation, but he agrees with von Bergmann, who applies a splint to the forearm; Dr. Thomas, however, allows the splint to remain in position very much longer than the author quoted; he insists that the arm should be kept in a splint for three weeks and then passive motion begun.

Address in Obstetrics.—This was delivered by Dr. Ella B. Everitt, of Philadelphia. In the preliminary remarks she stated that carcinoma penetrates the body of the uterus very much slower than it passes through the cervix. She divided the cases of carcinoma of the uterus into three groups. In the first group the results of the operation are good; in the second the results are fair; in the third the cases are inoperable. In the first group the carcinoma has not invaded the vagina nor the broad ligaments. Cachexia is not present and the health of the patient is good. In the second class of cases the broad ligaments are thickened; the peri-uterine structures are also thickened. In this group of cases the dangers of relapse become manifest. In the third group the glands are involved by the carcinomatous process, and it has invaded the peri-uterine structures. In the last group she believes palliative operation is perfectly justifiable, since they give the patient some comfort and at times relieve some of the disagreeable symptoms.

Ectopic Gestation.—Paper read by Dr. Charles P. Noble, of Philadelphia. In sixteen years he has seen some 90 cases of ectopic gestation, 42 of which were in the left tube and 40 in the right. In 6 patients there were cysts of the ovaries; 7 of the tubes were unruptured and 70 were tubual abortions. In three patients both tubes were involved at different periods of time. In nearly all instances the tube opposite the one containing the fetus was inflamed, but there never was present a pyosalpingitis. He is strongly inclined to believe that the cause, or, at least, an important factor in the causation of the condition is mechanical alteration. As for instance infection of the tube may be responsible by destroying the ciliated epithelial cells so that the ova are not passed down the tube. He advocates operation before the rupture. In 14 of the cases that ruptured there was an associated free hemorrhage, and of these 14 six died. Apparently the hemorrhage is more severe when the rupture occurs near the uterine end of the tube. In one of his cases the rupture and hemorrhage took place between the folds of the broad ligament, a condition which is rarely seen. Pelvic examination in the ruptured cases give very little information to the physician; the diagnosis depends upon the hemorrhage and the history of the patient, as the missing of a period of menstruation. Hemorrhage demands immediate operation. He removes the clots and the fluid blood, then washes with salt solution and leaves some of this fluid in the abdomen. Drainage is dispensed with. He saw one case of intra-abdominal pregnancy. In this case he removed the sac intact. Death in ectopic gestation is usually due to sudden hemorrhage or to the delay in the diagnosis.

Address in Hygiene and State Medicine.—Delivered by Dr. George W. Wagoner, of Johnstown. He gave a detailed description of the work of the late State Board of Health in the region of Johnstown. Then told of the creation of the new Department of Health; of its composition and its duty. He pointed out that the Advisory Board—a part of the Department of Health—is a mere figure-head, and that it is really controlled and named by the Commissioner of Health. Then he pointed out the power of the last named officer. Apparently there is an inconsistency of two articles in the rules and regulations of the Department of Health; nevertheless, the Commissioner gets the big end even here. In closing his address he advocated the establishment of schools or a school by the State for the instruction of physicians in the methods of disinfection. He also laid considerable stress upon criminal abortionists, declaring that it is the duty of the Commissioner of Health to make and continue a war upon these people.

(To be Continued.)

AMERICAN PROCTOLOGIC SOCIETY.

Seventh Annual Meeting, held at Pittsburg, May 5 and 6, 1905.

The President, J. R. Pennington, M.D., of Chicago, in the Chair.

Presidential Address.—The President's address, after the customary acknowledgments, referred to the adverse criticism which the organization and continued prosperity of this Society had provoked in certain quarters. He then proceeded to show that its existence was a logical and necessary step of progress. Special societies arise by a process of natural differentiation. This differentiation, which is unavoidable, by organization of the resulting groups, makes possible a greater definiteness of structure and function of the medical profession. Special organizations have multiplied more rapidly in the past thirty years than during any previous period, and likewise the advancement in the science of medicine has been greater during the same period. But the subject of proctology had been neglected in the past until the charlatan claimed it as his special field and the profession seemed still to be doing its utmost to support the claim Of the sixty-six institutions belonging to the American College Association only eight make any provision for teaching proctology. The American College Association has adopted a uniform curriculum consisting of twenty-seven subjects. This extensive course provides for thirty hours to be given each to medical jurisprudence, dietetics, hygiene and public health, sixty hours each to nose and throat, and genito-urinary diseases, and one hundred and sixty hours to gynecology. No reference whatever is made to the subject of rectal diseases. "In view of the fact that the greatest breach in the science of medicine today is, and always has been, at this very point, and that it is proverbially true that because of this breach the charlatan is more securely intrenched in this than in any of the other departments, I fail to see the equity in such curriculum."

"It may be claimed by the association of colleges, and those schools that do not include proctology in their curricula, that the chairs of general surgery devote a certain number of hours to these diseases. If so, why

are there so many reputable physicians in this country who have never heard a lecture on rectal diseases nor witnessed an anorectal examination or operation." The author conculdes that there is a distinct need for this Society, viz., the reclamation of this specialty for ethical medicine, and that the Society will exist, prosper and grow in influence in proportion as it meets this need.

Malignant Disease of the Rectum and its Treatment.—This was the title of a paper by Dr. G. B. Evans, of Dayton. He prefaced his remarks with a plea for thorough examination of all cases complaining of rectal symptoms. Many cases of uterine cancer have been termed "change of life," and very many cases of rectal cancer, "piles," because of neglect of this precaution. It is the consensus of opinion that cancer is at first purely local and that early recognition and thorough extirpation will cure a large proportion of all cases. Formerly the author was an advocate of colostomy in these cases, but now believes that this procedure should be reserved for those cases only which have advanced so far as to render the radical operation hopeless. The only contra-indication he would recognize as absolute is fixation of the rectum by extension of the growth to adjacent structures. The perineal and combined abdominal and perineal routes were recommended.

Ambulant Treatment of Internal Hemorrhoids.—Dr. C. F. Martin, of Philadelphia, presented this paper. He strongly defended the injection method. His technic consists of the injection of 7 to 10 minims of a 50 per cent. solution of phenol (Boboeuf) into each pile tumor at intervals of from two to seven days, depending on the effect produced. As a preliminary to beginning the injection the author recommends divulsion of the sphincters under nitrous oxide anesthesia, much of his success with the method being attributed to this procedure. He concluded that there are not more than 15 per cent. of recurrences and that accidents and complications are by no means so frequent as after the ligature and clamp and cautery operations. In addition the method is practically painless and the patient is not detained from business.

Cases of Fecal Impaction of the Rectum.—These were reported with comments by Dr. T. C. Martin, of Cleveland. After giving the symptoms usually complained of by these patients, he emphasized the value of the proctoscope for treatment as well as diagnosis. One of the cases reported was of special interest in that the cause was found to have been a ventral fixation of the uterus in which the rectum, by means of the utero-sacral ligaments, had been anchored so immovably that the patient could no longer "bear down" effectually.

Urethrorectal Fistula.—Dr. W. M. Beach, of Pittsburg, read this paper. After citing a number of cases and describing his method of treatment the author drew the following conclusions. (1) Urethrorectal fistula is comparatively rare and very easily overlooked. When in doubt, use the permanganate test. (2) It generally follows prostatic abscess of gonorrheal origin. (3) It may result from traumatism—faulty use of sound, lithotomy, etc. (4) This is one type of fistula which demands suturing. The suture material should be No. 3, forty-day catgut. (5) The care of the wound should never be left to an assistant; no one can possibly know as much about it as he who made it. (6) A certain number of cases of recent urethral origin will heal spontaneously when the stricture is relieved.

A Further Contribution to the Study of Pruritus Ani.—Dr. Lewis H. Adler, of Philadelphia, presented this paper. In the author's experience the male sex has been affected in about 95 per cent. of cases. In nearly all the cases the patients are more or less neurotic, and in the major portion, of a decidedly bilious temperament. These cases demand the removal of all exciting causes, and regulation of patients habits of life should precede and attend local treatment. The latter consists in the daily injection into the cavity of the rectum of from 1 to 2½ drams of the following mixture:

℞ Ext. Hamamelis fl.....1 fluid ounce
Ext. Ergot fl.....2 fluid drams
Ext. Hydrastis fl.....2 fluid drams
Tr. Benzoin comp.....2 fluid drams

Upon the first visit if the perianal skin is dry and tough the entire surface should be painted with a concentrated solution of silver nitrate (960 grains to the ounce). This may require repetition several times at intervals of a few days to restore the skin to normal. After this is accomplished the full strength citrine ointment is to be applied and renewed daily for two or three weeks and thereafter on alternate days or twice a week. This method of treatment may extend over a period of six months or even longer, but in the author's hands it has proved uniformly successful.

The Operative Treatment of Tuberculous Rectal Fistula in the Tuberculous.—Dr. J. Coles Brick, of Philadelphia, discussed this subject. The frequent association of rectal fistula and phthisis has long been recognized. Some authors claim that 5 per cent. of consumptives develop fistula, and Hartman found that of 48 cases of fistula 23 were positively tuberculous. In the author's opinion the irritating effects of ether are often responsible for the onset of pulmonary symptoms. For this reason he employs nitrous oxide and oxygen when a general anesthetic is demanded. All raw surfaces are seared with the hot iron. When the case is extensive it is better to perform the operation in stages so as to minimize the period of confinement to bed. Special stress was laid on the after management of these cases. The patient should be kept in bed as little time as possible, but no active exercise allowed until weight has returned to normal. Forced feeding and outdoor air are recommended, and daily sponging with tepid; or, if patient's vitality is sufficient, with cold water, is of great value. A weekly gain of weight is the one standard of favorable progress. In conclusion the author advised that all fistula patients be carefully examined for local and pulmonary tuberculosis and even though the examination be negative, that every case be treated as though tuberculosis were likely to be developed.

Personal Experience in the Employment of Mechanical Vibration in the Treatment of Rectal Diseases.—Dr. W. L. Dickinson, of Saginaw, said that this is a valuable method of treatment and deserving of more general use by the proctologist. A number of instances were recounted in which it had been successfully used for the relief of fissure and to accomplish dilatation of the sphincters. But the author thought that its greatest field of usefulness was in the treatment of chronic constipation and gave the technic of its application in such cases.

The Office Treatment of Rectal Diseases and its Limitations.—Dr. James P. Tuttle, of New York, read this paper. The trend of practice in rectal diseases of the present day is three-fold: First, toward a more general resort to operative measures; second, toward a wider application of local anesthesia; and third, toward a great increase in office treatment. These tendencies are due to the following facts: (1) The public as well as the profession has learned that non-

operative measures cannot be relied upon for permanent cures. (2) Dread of general anesthesia has greatly diminished, due chiefly to the improved methods in the use of ethyl chloride and nitrous oxide, alone or as adjuvants to ether. (3) Dissemination of the knowledge that most of the minor rectal surgery can be done under cocaine or other local anesthetic with as little pain and almost as little detention from business as is occasioned by the non-operative measures which give only temporary and uncertain relief. (4) Local anesthesia is being more generally adopted because it is safer, can be more quickly applied, simplifies the work, and at the same time, if properly used, permits of as thorough work as general anesthesia. Cocaine, eucaine, stovaine and sterile water, are all reliable local anesthetic agents. One per cent. solution of cocaine, eucaine and stovaine are as strong as it is ever necessary to use, and usually one-fourth per cent. is sufficient. Stretching of the sphincter under local anesthesia has heretofore been the most difficult thing to accomplish without excessive pain; but the author referred to a method he had devised by which this can be done, thus making it possible to operate painlessly on hemorrhoids, fissures, small fistulas, ulcerations, tumors low down and even low stricture. But while these things are possible the author considers certain conditions requisite: (1) Asepsis; (2) careful selection of cases; (3) complicated an' plastic operations not to be undertaken; (4) when general anesthesia neccessary it is better to have patient at home or in the hospital, even though it may be possible to do the work in the office.

A Contribution to the Pathology of External Piles.—Dr. Louis J. Krouse, of Cincinnati, presented this paper. He limited his remarks to the sanguineous or thrombotic variety, after a review of the literature on the suject and of the anatomy of the parts, the author drew the following conclusions: First, that the walls of the hemorrhoidal veins must undergo some pathological change before a thrombotic hemorrhoid can develop. Second, that these changes being present, any undue pressure may cause an aneurismal dilatation of the veins. Third, that when the internal coat of the vessel is altered, there is more tendency for coagulation to occur. Fourth, that sexual activity increases intravenous pressure and thus favors the condition. It is therefore a disease of adult life. Fifth, that the clot is always found in the diseased vessel and never in the peri-venous connective tissue.

A Summary of Twenty-five Radical Operations Upon the Rectum Under Local (sterile water) Anesthesia.—This paper was read by Dr. A. B. Cooke, of Nashville. The twenty-five operations consisted of: Internal hemorrhoids, 15; prolapsus ani, 2; anal fissure, 2; external hemorrhoids, 6. From this series of cases the author drew the following conclusions: (1) The method is simple, safe and effective. (2) Pain at the time of operation is exceptional. (3) Postoperative pain is far less than after the old methods. (4) Time of detention from business is reduced more than half. (5) It offers a reliable means of extending the benefits of surgery to a large class of cases which would otherwise be unsuitable for operation. (6) It robs these operations of their terrors. Summing up his personal experience with the method the author stated that it had been satisfactory beyond his fondest hopes, and if the promise of the method is realized in the future, that he would have need for general anesthesia in rectal surgery only in the exceptional case.

Officers.—The following officers were elected for the ensuing year: President, Dr. Lewis A. Adler, Jr., of Philadelphia; Vice-President, Dr. George B. Evans, of Dayton; Secretary-Treasurer, Dr. A. B. Cooke, of Nashville; Executive Council: Dr. J. R. Pennington, of Chicago, Chairman; Dr. T. C. Martin, of Cleveland, and Dr. William M. Beach, of Pittsburg. Time and place of meeting for 1906 to be determined by the Council.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held April 26, 1905.

John B. Murphy, M.D., in the Chair.

Remarks on the Local Treatment of Gonorrhea in the Male.—Dr. R. R. Campbell, in a paper with this title, said it is unquestionably a mistake to expect that any routine treatment based on a certain theory should be followed out in every case with good results. It is not sufficient to prove that in a particular case we have to deal with gonorrhea, but it must be determined in which part of the urethra the trouble is located, and also the stage of the disease. Inasmuch as the modern treatment is mainly a local one, and as this varies according to whether we have to deal with an anterior or posterior urethritis, the importance of this demand becomes apparent. The modern treatment is largely an antiseptic one, but the agents employed have to be adopted to the stage of the process, to the degree of inflammatory reaction, to the severity of subjective symptoms, and to the intensity of microbic flora. The selection of the drug, its concentration, the frequency and duration of the application, and the method of the application depend upon the above-mentioned conditions. One of the first considerations must be to bring the antiseptic solution in contact with all the parts of the anterior membrane. In all acute cases the usual method is by the use of a small syringe. The size of the syringe must be such that sufficient fluid can be injected in the urethra to distend it. The individual capacity of the anterior urethra varies between 11 and 15 c.c., consequently the syringe must contain at least that much fluid. During the acute stage the lumen of the urethra is somewhat reduced by the inflammatory swelling. It is desirable that the first injections be administered by the physician himself, so as to test the capacity of the urethra. In deciding upon the concentration of the solution and upon the frequency and duration of the injections, the treatment should vary according to the intensity of the inflammatory symptoms and the varying sensitiveness of the urethra. An injection should never cause actual pain, and should never increase during the acute stage the inflammatory reaction and the amount of suppuration. It is advisable to begin treatment, especially in peracute cases, with weak solutions, using only three injections a day, each of the duration of about three minutes. Every following day increase gradually the strength of the solution and at the same time increase the number of injections and the length of time during which the injection is retained. In case the inflammatory symptoms are very severe, and in case the suppuration is very abundant, it is wise to begin the treatment with solutions of argyrol or ichthargan, silver salts that are very slightly irritating. After the symptoms begin to abate, protargol may be employed. In all stubborn cases where the energetic, frequent and prolonged applications of the organic silver salts do not lead to the disappearance of the gonococci, the treatment is changed to silver nitrate. In such cases a change in the method of application always improves the condition. For instance, we change from simple injections to irrigations; from irrigations with a catherter to Janet irrigations, and eventually to instillations. All cases of relapse, after

an apparent interval of cure, call for a more severe and energetic treatment. In these cases, one first has to produce a good reaction by irritating the tissues in order to make all the inflammatory foci more accessible. For this purpose dilatation is employed, if necessary, combined with irrigation, so as to stimulate the mucous membrane. In cases that have had no treatment from the start, or in cases that were not properly treated and come under observation in a semi-chronic stage, it is a good plan to start some reaction right away by irrigating with a weak silver nitrate solution, and afterward employ that treatment which seems best suited for the inflammatory symptoms and microscopical findings.

Some Complications of Gonorrhea.—Dr. William T. Belfield, in a paper on this subject, said that objection was made to the revival of the ancient teaching that gonorrhea was never cured; that the patient once infected is always infectious. This teaching was popularized in this country by Noeggerath, years before the discovery of the gonococcus, and therefore at a time when the eradication of the infection could not be demonstrated. The work of numerous investigators, both in the laboratory, and especially in private practice, has abundantly proven the absolute disappearance of the gonococcus of a few weeks or months after infection in the large majority of infections, as well as its persistence for years in sporadic cases. The few should not be mistaken for the many. Folliculitis—abscess of a follicle or lacuma—is an occasional feature of gonorrhea, resulting sometimes in an opening through the skin with fistula formation. The latter may heal spontaneously or require operation. Strictures are results of gonorrhea best treated, as a rule, by gradual dilation. Internal urethrotomy is permissible in the first half inch of the urethra, external urethrotomy in the perineal urethra. In the portion of the urethra surrounded by the cavernous bodies, internal urethrotomy is a needlessly dangerous substitute for gradual dilatation. Warts (papillomata) are not infrequent results of gonorrhea, in the urethra as well as on the glans penis. They are usually removable by the application of lactic acid. Exudation into the veru montanum may be followed by impairment of the sexual power, marked by imperfect erection and premature ejaculation. Apparently the nerve endings in the veru montanum are as necessary to perfect sexual function as are the nerve endings in the Schneiderian membrane to the olfactory function; and the damage done to this structure by the gonorrheal inflammation may impair that important function.

Thus impotence is curable, if treated within a few months; otherwise it may become permanent through atrophy of the nerve endings. Sterility, too, may result from gonorrhea, even when the sexual power is not impaired. This results, not merely from double epididymitis, but also from damage to the prostatic follicles, whose secretion is necessary for the movements and nourishment of the spermatozoa. After a gonorrheal attack, the semen may contain only motionless spermatozoa, useless for the fertilization of the female. Contracture of the vesical neck is a not infrequent result of gonorrhea, usually confounded with prostatic enlargement in these days of fever, or prostatectomy. It is found in men of all ages; even in women; and it is cured not by prostatectomy, but by dilation or incision of the vesical neck (with the cautery through the perineum). These cases were often cured by the antiquated Bottini operation. Pus infection of the seminal vesicles and of the epididymis often continue into the chronic state. The epididymis can be incised and drained, the vesicle irrigated from the vas deferens, as the author his recently shown.

Impotency and Sterility Due to Gonorrhea.—Dr. Frederick Leusman read a paper with this title. The daily experience of every practitioner shows a wide distribution of gonorrheal infection, children and infants are not excepted. Modern travel leads to infection of even the smallest hamlet. Whether gonorrhea is a disease of civilization, like lying is said to be, the speaker did not know. Some savage races shared the women in their tribes, while equally savage races placed the death penalty on any one that infringed on the marital privileges of their monogamous marriages. Present-day experience plainly shows that promiscuous intercourse leads to disease of both body and mind, mostly gonorrhea, while single wedlock is the only pathway towards happiness, order and culture. Impotence and sterility are the wages meted out to those that disregard the laws of nature by thus preventing their reproduction. Preventative treatment must begin with infancy and youth. For his part, he believes that the proper plans in detail can be formulated by physician and teacher.

Gonorrheal Urethritis and Cystitis in the Female.—Dr. Gustav Kolischer, in a paper with this title, stated that gonorrheal urethritis in women was very common. He advanced reasons why the disease was not frequently recognizd, and among them he said that a great many cases of gonorrheal urethritis in women cause no severe subjective symptoms. A large number of cases of gonorrheal urethritis in women are caused by the first sexual intercourse. There is inflammation of the urethral mucosa in some cases, and this is taken by young girls or married women as the natural consequence of intercourse. The discharge is not as easily or as early recognized in the female as in the male. Infection of the urethra is not only important on account of the subjective symptoms, but because the gonorrheal urethritis in a woman is a permanent menace to the other organs. A great many cases in which infection occurs in the urethra may lead to serious consequences later on by involving the pelvic organs. It was taught and believed for years that if gonorrheal infection occurred in the female urethra, this infection would disappear without special attention being directed to it after a certain time by the attending physician. This is erroneous. One of the conditions which proves that such a supposition is wrong is that we find so frequently in young women strictures, old infiltrations which have become organized and finally are transformed into cicatricial or fibrous tissue. As a rule, gynecologists see only cases of chronic gonorrhea in women. In this stage less attention is paid to the urinary organs, and attention is concentrated on the pelvic or genital organs. The first infection usually takes place in the urethra and around the urethra in the vestibule, but not in the vagina or in the cervix. After the usual period of incubation, all the signs of gonorrheal infection of the urethra are noticed—pain during urination, swelling, even ectropium of the lips, with a discharge of pus which contains gonococci (intracellular). Four or five days later, corresponding to the gonorrheal infection, the vulva becomes infected. A week afterward there is a purulent discharge from the vagina containing gonococci. Later cervicitis is observed, which produces a secretion infested with gonococci. When a woman complains of symptoms

referable to the urinary and genital organs, the physician should find out whether he has to deal with gonorrhea, and if so, prevent the spreading of the gonorrheal process to neighboring structures. The main object should be directed toward preventing the spread of the infection, which can be accomplished by antiseptic irrigations of the vulva and vagina. This is best done by the use of non-irritating silver salts. These are the surest germicides. A part of this germicidal silver salt solution may be retained in the vagina without causing any reaction, that is, depriving the undelying tissue of the protection which the epithelium furnishes. To prevent the spread of infection to Skene's glands, to the crypts or mucosa of the vulva, the best way is to insert between the labia a pad which is saturated with one of the solutions of the silver salts. It is best to use argyrol, first, because it can be employed in concentrated solution without producing any erosion of the epithelia. This pad should be changed frequently. One should not advise a woman to irrigate her own urethra, or resort to injection of the same, as is done in the case of man, as it is impossible for her to do so without great risk. The clinical picture of gonorrheal cystitis is established after examining the large number of cases of this kind, and finding that the cystitis corresponds with the picture. The speaker excised a part of the membrane of the bladder, which he recognized as having been affected by gonorrhea, and Wertheim examined the excised piece of mucosa, finding that the gonococci had not only invaded the epithelium, but the submucous layer, and the cavity and crypts were literally teeming with gonococci. This was proof of the existence of gonorrheal cystis. He described the clinical picture of gonorrheal cystitis as seen on cystoscopic examination. The frequency of gonorrheal cystitis in woman is due to the fact that it is frequently overlooked, so that by and by the ureters and the pelves of the kidneys are involved.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held September 13, 1905.

The President, James M. Anders, M.D., in the Chair.

Anorexia in Infants in Hot Weather.—Dr. Maurice Ostheimer called attention to this condition, in which often the only symptom was the refusal of the child to take the proper amount of nourishment. To find cause for this loss of appetite, when there are no symptoms, he said was difficult and there must be considered the possibility of functional derangement of the gastro-intestinal, or of the intestinal tract more properly. In one case an increase of the proteids in the milk mixture, up to two per cent. helped the child, but only after two months did the child take more food at each feeding. In some cases he stops all food and gives barley water and whey. He especially called attention to the fact that anorexia occurs only during hot weather and that often it is cured only by removal to a cooler climate.

Rest in Tuberculosis.—Dr. William B. Stanton considered the treatment of tuberculosis under the heads of: (1) Abundant food; (2) fresh air; (3) regulation of the exercise. He pointed out the danger incident to injudicious exercise. The amount of exercise to be taken, he said, depended upon temperature, pulse rate, respiratory rate, degree of emaciation, existence of complications in heart, kidneys, bladder, intestines, etc. Constant temperature above 100° F. or elevations to this extent in usually afebrile cases, call for absolute rest in bed. Remittent temperature when above 101° F. in the afternoon, also indicates rest. If the temperature is only 100° F. the patient may be allowed up, and exercise may be begun when the temperature is below 100° F. A pulse rate of 120 in the morning indicates rest. With a pulse rate of 110 or under the patient may sit up, and exercise may be begun when the pulse rate falls below 100 when resting. Breathing rate, he said, depended usually upon the degree of involvement and the competency of the heart. Marked emaciation contraindicates exercise even if other signs are favorable. Rest should be insisted upon until a satisfactory gain in weight is obtained. The complicating disease should decide the amount of exercise, bearing in mind that rest is even more necessary where two depressing influences are present. He recommended walking as the best and most easily regulated form of exercise. The gait should be slow and at first the walking should be done only on the level ground.

The Committee of Three appointed by the society to aid in the prosecution of criminal abortionists reported that thirty cases had been investigated, and that each of the thirty persons had either left the city, was under police surveillance, was a fugitive from justice, was awaiting trial, or was in prison. As an additional example of results, it was stated that the Sunday edition of one of the newspapers, formerly carrying from ten to seventeen advertisements of criminal abortionists, no longer printed such material.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held Tuesday, September 19, 1905.

The President, A. Bern Hirsh, M.D., in the Chair.

Important Changes in the Pharmacopœia.—This paper was read by Dr. E. Q. Thornton, who stated that owing to the death of the chairman of the committee appointed by the convention at Washington in 1900, Dr. Rice, the completed work had not been published until August 1, 1905. He considered the subject in considerable detail and under the following headings: (1) Articles dismissed, of which there are 155, consisting principally of obselete substances; (2) articles added, of which there are 117, giving in detail the composition and names; (3) changes in official names, which had been made to conform as near as possible whenever practicable to the true chemical name; (4) changes in the English names; (5) changes in strength of preparations, giving a tabulated list of the strengths under the Pharmacopœia, and a comparison with the new edition; (6) statement of the average doses of the various drugs; (7) changes in the solubility of the various drugs on account of the change in the thermometric degrees at which the solubility was determined.

The Medical Chemistry of the Pharmacopœia.—Dr. Henry Leffman discussed this subject. The use of the Pharmacopœia to the physician, the analytical chemist and the druggist was dilated upon, and he felt that one effect of giving the dose of the various remedies would be to encourage the putting up of medicines by druggists, without a physician's prescription. One point he viewed with disfavor was the adoption of an atomic body based upon the hydrogen one system, instead of the oxygen sixteen system, which he viewed as particularly unfortunate

because of the fact that the oxygen sixteen system was the one in which all the statistics of the Bureau of Agriculture were furnished. Another point which he viewed with disfavor was the introduction of a large number of manufactured substances, or substances made by the combination of other drugs. He objected to the use of the genitive case for the names of chemical solutions, such as carbonate of soda, and traced the origin of these terms from the French language in the latter part of the eighteenth century. He referred to the unnecessary complications caused by the distinction between ordinary water and distilled water, and the test for nitrites in distilled water, which he said was of such a delicate nature that it was not practicable, particularly with the general practitioner. He particularly deprecated the introduction of the liquor antisepticus and headache powders, but recommended the changes from hydrochlorate to hydrochloride and naphthol to naphtholine.

Dr. Henry D. Wieder referred to the difficuty of the physician becoming acquainted with the changes in strength, etc., by the new Pharmacopœia, and asked what method was adopted for informing them in this direction.

Dr. Frank C. Hammond referred to a case in which he had ordered tincture of lobelia, writing his prescription in accordance with the new edition, which produced severe and persistent vomiting, and upon inquiry he learned that the druggist had filled it according to the old Pharmacopœia.

Dr. W. Hershey Thomas asked which method would be pursued by the druggist in refilling prescriptions given before the new Pharmacopœia was adopted.

Dr. Ellis E. Given stated that he had been informed by a druggist that he had filled all prescriptions dated before September 1 according to the old Pharmacopœia, including renewals put up after that date, and that all prescriptions subsequent to that would be put up under the new Pharmacopœia.

Dr. A. Bern Hirsh stated that he had been informed by a druggist in his vicinity that he intended to use the system outlined in the 1890 Pharmacopœia for some time to come. He felt that the change had been sprung upon the profession too suddenly and that mention should have been made of it and notice given through the prominent medical journals in order to permit the physician to familiarize himself therewith.

Dr. Henry Leffmann, in speaking of the criminal liability of druggists not compounding prescriptions according to the new Pharmacopœia, referred to a decision of the Supreme Court of Ohio in a prosecution brought after the 1890 revision of the Pharmacopœia had come out in 1893. It was decided that an Act of the Legislature could have no reference to anything published after the Act was passed, and therefore the conviction could not be maintained.

Dr. E. Q. Thornton, in closing, stated that he felt the reason that the Pharmacopœia was so little representative of the medical profession was due to the lack of attendance of the members of that profession appointed. In regard to the changes, he stated that it must be remembered that it becomes necessary to throw out obsolete drugs, and the only way he knew for physicians to become familiar with it was to have it in their libraries. He stated that Bulletin No. 23, recently issued by the Treasury Department, Marine Hospital Service of the U. S., entitled "Changes in the Pharmacopœia," had considerable information on this subject. The mere fact that a drug was mentioned in the Pharmacopœia, he said, did not necessarily signify either that it was of value, or was endorsed by those engaged in the preparation of the work, but merely that there was a demand for it.

Dr. A. Bern Hirsh suggested the advisability of separating the drugs from the combinations and inserting them under separate headings. He also felt that in future revisions it would be best to have at least one-half of the committee of active practitioners.

BOOK REVIEWS.

ARNEILL'S EPITOME OF CLINICAL DIAGNOSIS AND URINALYSIS. A Manual for Students and Practitioners. By JAMES R. ARNEILL, A.B., M.D., Professor of Medicine and Clinical Medicine in the University of Colorado; Physician to the County Hospital and to St. Joseph's Hospital, Denver. Lea Brothers & Company, Philadelphia and New York.

IN this little volume, a large amount of useful and thoroughly up-to-date knowledge is condensed within 244 pages. It is particularly gratifying to note that illustrations, which form so valuable a part in a treatise of this nature, occur on almost every page. In looking over the different chapters, we find that the limitations of the Widal test have perhaps not been emphasized sufficiently. The Ficker test is described, but not the test with formalized bacilli, even though the former requires an expensive culture made by a secret process, while the latter can be made in every bacteriological laboratory, and is in every way as good. The method of making blood-cultures, the subject of trypanosomiasis, spotted fever and *Uncinariasis* are described carefully, as well as Cryoscopy, even though this seems to be "going out of fashion." We are glad to see that the feces are not neglected, though no mention is made of the aloin reaction for the detection of traces of blood in suspected cancer or ulcer. Under urine, altogether too much space is devoted to the "pancreatic reaction." The Sahli test meal is neglected by this, as well as most other books on laboratory analysis, yet more knowledge of the function of the stomach can be obtained than with the simpler test-meals.

THE RÔLE OF MODERN DIETETICS IN THE CAUSATION OF DISEASE. By J. SIM WALLACE, M.D., D.Sc., L.D.S., Hon. Dental Surgeon, West End Hospital for Nervous Diseases, and Assistant Dental Surgeon National Dental Hospital, W. Bailliere, Tindall & Cox, London.

THE essays of this little volume have mostly appeared in recent years in such important English medical journals as the *British Medical Journal, The Lancet, The Medical Press* and various English dental journals. Some them, however, are written for this collection. Dr. Wallace has one important idea that he brings out very forcibly; this is, that the teeth of children decay sooner, the second teeth are not so well formed, the jaws are not so well developed, and as a consequence there may be narrowing of the respiratory passages and tendencies to mouth-breathing, because children are not asked to chew their food, but for too long in their early years are fed on various liquid foods that do not require mastication. Undoubtedly he makes out a good case, and his ideas are very clearly expressed. There is not the air, either, of his book being merely the fad of a specialist, for it is full of practical suggestions of many kinds.